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Vol. 3 No. 10 February 1988 £1.25

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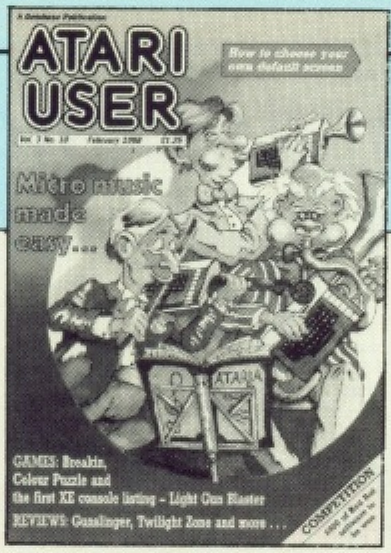
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Vol. 3 No. 10 February 1988

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# ATARI USER NEWS REVIEW

## Console campaign continues

A COURT decision in the US has resulted in Atari being able to continue with its TV campaign for the XE video games console.

The case was brought by Nintendo who complained that the TV ad was false and misleading by comparing its games machine to Atari's.

Mike Katz, of Atari's electronic entertainments division, said: "We are very pleased about the ruling. The commercial was hard-hitting but truthful".

## New venue for show

*THE biggest Atari User Show ever is lined up for the West Hall, Alexandra Palace, London, April 22 to 24.*

*Last November's show at the Novotel in Hammersmith was so successful it smashed all previous attendance records.*

*The rapidly growing army of Atari enthusiasts ensured that a move to an even larger venue was a must for organisers Database Exhibitions.*

*And even after the switch to the spacious Alexandra Palace, increased demand from dealers has meant an extra 30 per cent of exhibition area has had to be provided.*

*Visitors will now have even more to see and more bargains to choose from than ever before, with exhibitors already promising price cuts on games, discs, printers, business packages, and hundreds of other items.*

*A money-saving advance ticket order form appears on Page 4.*

# Woolworths to stock Atari budget titles

**THERE is good news in store for Atari budget software buyers. Woolworths is ending its exclusive arrangement with Mastertronic, and stocking a selection of Firebird titles as well.**

And there is a strong possibility that the High Street giant will also find shelf space for the fast-moving Code Masters games.

Boots is also expected to rearrange its Mastertronic-dominated shelves and give more exposure to Firebird and Code Masters titles.

A company source said there are plans to deal with all its budget software suppliers on an equal basis in future.

Meanwhile, Activision has agreed to let Mastertronic handle its entire catalogue of hit programs under the newly-created budget label Ricochet.

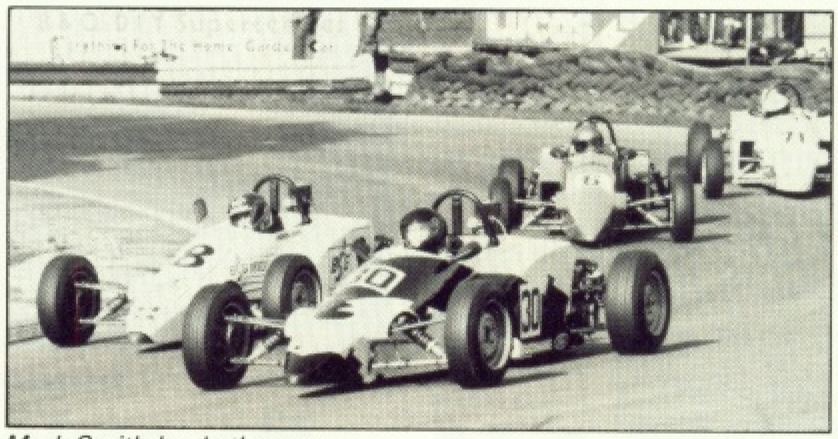
Atari 8 bit versions will cost £1.99 on cassette and £2.99 on disc.

The vast Activision range includes the Lucasfilm titles and classic hits like Ghostbusters – which will be one of the first Ricochet releases.

A Mastertronic spokesman told *Atari User*: "We're delighted to do this deal. The Activision range reinforces our policy of only releasing the very best quality product on the Ricochet label".

Activision's Rod Cousins said: "The agreement really demonstrates the importance of secondary marketing opportunities and of building a catalogue that has a worth over a period.

"In a business where shelf life may be short lived, the ability to recycle programs through budget labels is beneficial to all concerned".



*Mark Smith leads the way*

## Virgin races ahead

VIRGIN Games moves into the fast track this year with motor racing sponsorship.

Driving its entry in the Formula First championship will be Mark Smith, author of interactive adventure books that have provided the inspiration for several computer games.

From those books Virgin Games has produced Falcon, the Renegade Lord and will soon release Duelmaster, Challenge of the Magi. Gremlin Graphics has published Way of the Tiger and plans a second Duelmaster adventure called Blood Valley.

Mark will be sponsored for the Top Gear Formula First series at Brands Hatch – and Atari users will have plenty of chances to see the distinctive Virgin Games logo flashing around the track because the races will be covered by BBC 2's Top Gear programme.

## Case settled

FOLLOWING an injunction and court case involving Telecomsoft and Hewson, Firebird has won the right to publish Morpheus and Megnetron this year.

The titles came under contention when Steve Turner, boss of Graftgold and author of Magnetron signed a long-term programming contract with Telecomsoft for all future products and separate contracts for Morpheus and Magnetron.

Prior to this deal, Graftgold had published all its hit titles through Hewson which objected to Turner's new arrangement.

It could be several months before the dispute is finally settled, but in the meantime the courts say Telecomsoft can go ahead and publish the two contentious titles.

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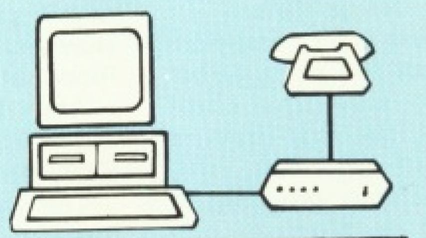
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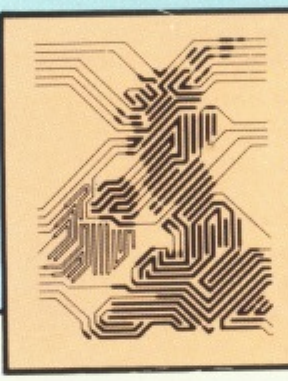
***If you don't have an interface:***
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*Total price: £149.95.*

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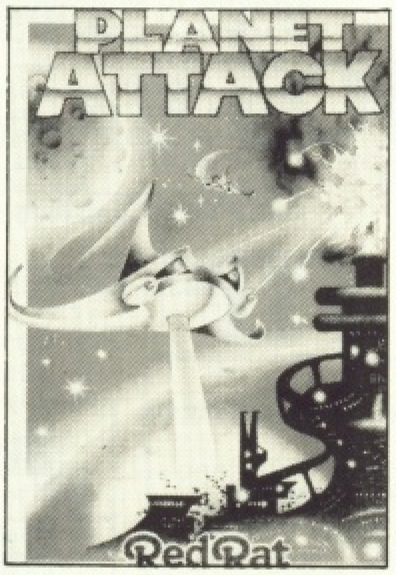
# Double helping from Red Rat

A DOUBLE helping of entertainment is being served up by Red Rat Software with the release of two twin-pack games for the Atari.

Both titles come on a single cassette or disc and feature high resolution graphics and scrolling animation.

The first release contains Mad Jax and Planet Attack. Mad Jax is a wild car game where you have to guide the vehicle through the desert en route to the city.

It may sound simple, but planes and heavily armed monster cars are out to get you.



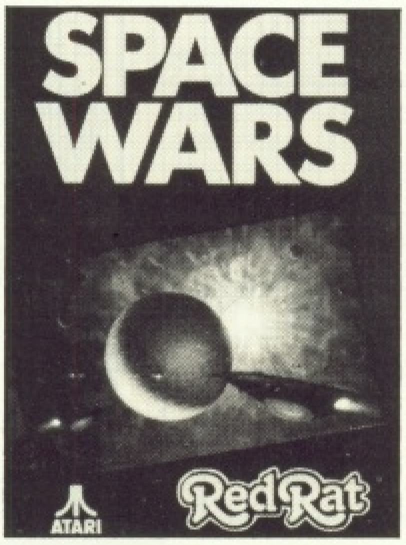

In planet Attack the object is to destroy enemy alien tripods on a distant planet. Following take-off from your landing pad you have to drop bombs and fire lasers to destroy the targets.

However, hostile flying saucers attempt to thwart your mission.

The other double pack from Red Rat (061-835 1055) features Space Wars – a good old shoot-'em-up in the style of the classic arcade game Astroblaster – and Dreadnaught.

From deep space to the deep blue sea, Dreadnaught follows the theme of the lost city of Atlantis: Aliens are trying to destroy the remains of the city and it is your job to stop them.

All double packs are priced at £7.99 on cassette and £9.99 on disc.




# Zepplin takes off

A WEALTH of new games titles for Atari computers are on the way following the recent formation of Zepplin Games (091-281 4401).

The company was launched last November and boasts a team of highly talented young programmers.

Zepplin's software director, Brian Jobbling, aged 19, already has some impressive titles under his belt, including Phantom, Winter Olympics, and Who Dares Wins II. His latest offering for the Atari is Speed Ace, a motorcycle simulation in which two players can compete against each other or 19 computer riders.

The game features some of the world's best known race tracks, such as Silverstone, Brands Hatch and Monza.

Colliding with any of the other riders on the track results in losing temporary control of the motorcycle at simulated speeds of up to 130 mph. Price £2.99.

# THE GALLUP CHART TOP 20 ATARI SOFTWARE

| THIS MONTH | LAST MONTH | TITLE (Software House) | PRICE |
|---|---|---|---|
| 1 | 3 | HENRY'S HOUSE *Mastertronic* | 1.99 |
| 2 | 5 | PANTHER *Mastertronic* | 1.99 |
| 3 | 4 | 180 *Mastertronic* | 2.99 |
| 4 | 6 | ON CUE *Mastertronic* | 2.99 |
| 5 | 1 | DECATHLON *Firebird* | 1.99 |
| 6 | 2 | FEUD *Mastertronic* | 1.99 |
| 7 | 10 | TALLADEGA *Top Ten* | 2.99 |
| 8 | 12 | STORM *Mastertonic* | 1.99 |
| 9 | ● | TRANSMUTER *Mastertronic* | 1.99 |
| 10 | ● | COLONY *Mastertronic* | 1.99 |
| 11 | 9 | FOUR GREAT GAMES *Micro Value* | 3.99 |
| 12 | 15 | GAUNTLET *US Gold* | 9.95 |
| 13 | 17 | FOUR GREAT GAMES 2 *Micro Value* | 3.99 |
| 14 | 13 | LEADERBOARD *Access/US Gold* | 9.95 |
| 15 | 14 | BMX SIMULATOR *Code Masters* | 1.99 |
| 16 | 11 | MILK RACE *Mastertronic* | 2.99 |
| 17 | ● | ACTION BIKER *Mastertronic* | 1.99 |
| 18 | 16 | DIZZY DICE *Players* | 1.99 |
| 19 | ● | MONKEY MAGIC *Alternative* | 1.99 |
| 20 | 8 | SILENT SERVICE *Microprose* | 9.95 |

*Compiled by Gallup/Microscope*

Mastertronic dominates this month's chart. Not only has it dislodged Firebird's Decathlon from the number one position – replacing it with the excellent Henry's House – the company also has seven titles in the Top Ten.

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| MINER 2049ER | CART |
| BASIC (400/800) | CART |
| ROSENS BRIGADE | CASS & DISK |
| CLOWNS AND BALLOONS | CASS & DISK |
| SEA BANDITS | CASS & DISK |
| POOYAN | CASS & DISK |

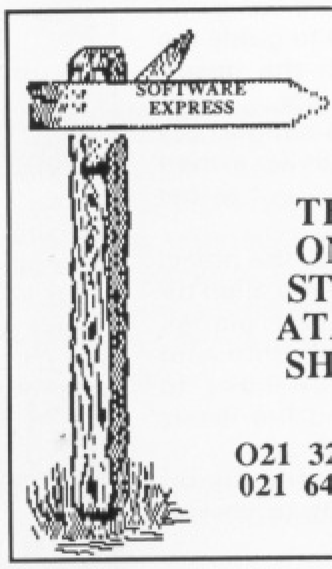
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# Light touch in Aquitania

by Rouloc

**JUST let me ease off these seven league boots and soak my aching tootsies in this bowl of hot mustard-water and I'll be with you. Ahhh! That's better. You see, I've just been playing in the All Dwarfs 26-a-side crystal ball kicking championships and my toes are now the size, colour and consistency of a bunch of over-ripe bananas.**

My team – the Adventuring Allsorts – lost 751-nil in the final to the Rough Diamonds – a mixed team of giants and ogres from over the western hills. They were bigger than us – about 15 feet to be precise.

Goodness knows how they were admitted to the competition: They must have bribed the committee with one of their famous dinosaur pies.

Still, enough of my pastimes. Let's get on with the real business – adventuring. I have exciting news of three great new games, all of which may well be on sale by the time you read this column. First, following up the superb Guild of Thieves, comes Jinxter from Rainbird and Magnetic Scrolls.

This lighthearted and humorous tale is set in Aquitania, a land soaked in luck and happiness where nothing nasty ever happens: A land protected from the naughty Green Magicians by a charm bracelet of magical powers.

But someone has been removing the charms from the bracelet, with the result that the Greenies are gaining power, and luck is at a premium. Your task is to recover the missing charms and so restore Aquitania to its former state of well-being.

Written by Michael Bywater and the Magnetic Scrolls development team, Jinxter is a far cry from being another run-of-the-mill adventure. You won't find any obsolete Orcs, washed-up wizards or hammy Hobbits in this one.

What you will find is an adventure that provides puzzles and giggles in abundance. For instance, *a guardian from beyond the realms of time* is not a cloaked and bearded figure of awesome demeanour, but a morose, reluctant, time-serving bloke in a herringbone overcoat – a sort of Arthur Daley of Aquitania. "What's the point of wossname, immortality," he grumbles, "if you can't get a decent bit of cheese in your sandwich, narmean?"

And he's pretty naff at helping you learn the magic spells you'll need to succeed in your mission. "Just find the watchercallit, say the doodah and thingie's your wossname. Charm. Word. Bob. Uncle. Narmean?"

The supporting characters are no less strange. The gardener is a certifiable megalomaniac and the village postmistress thinks she's Calamity Jane. And what is the relationship between her and the thick-witted postman? What is going on in your best friend's cellar and what's that pong? Why is everybody so unwilling to give you speedy and polite service?

These and many other pleasures await you in Jinxter – an adventure in which you can't die, except perhaps by laughing yourself silly.

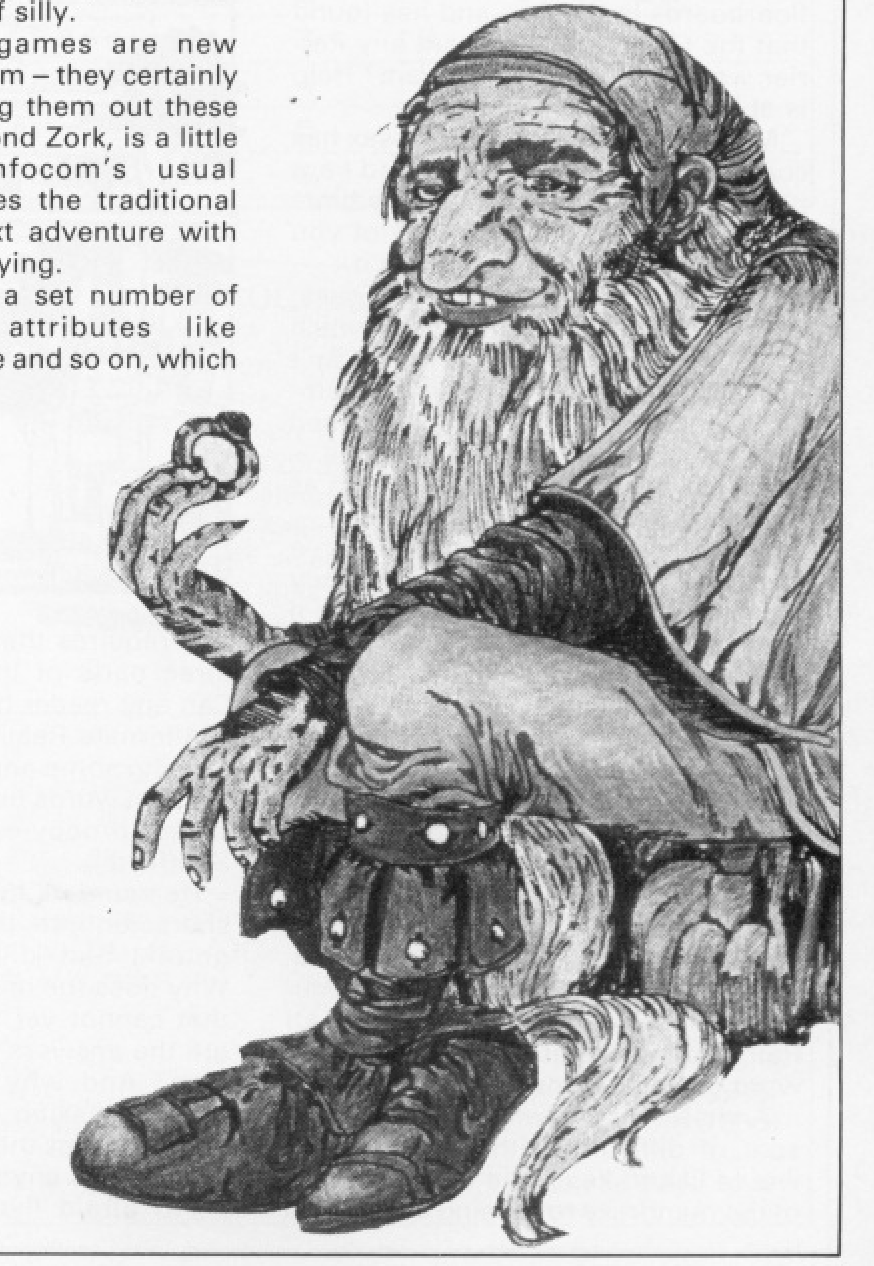
The other two games are new releases from Infocom – they certainly seem to be churning them out these days. The first, Beyond Zork, is a little different from Infocom's usual offering. It combines the traditional type of Infocom text adventure with elements of role-playing.

You can allocate a set number of points between attributes like strength, intelligence and so on, which thus determine how you will fare in certain situations.

The adventure includes combat, and I believe there is even an on-screen mapping feature – a new departure for Infocom.

The second Infocom title is Border

*Turn to Page 10* ►



◄ *From Page 9*

Zone, their first tale of international intrigue. The plot concerns a rash American spy, a KGB agent and a happy-go-lucky businessman. The trio becomes enmeshed following the assassination of a diplomat and their paths cross as each carries out his particular assignment.

You see the story from the three differing viewpoints, and to help you on your way on-screen hints are available – another new feature.

Written by Marc Blank, author of such illustrious adventures as Deadline and the original Zork, Border Zone promises to be a treat for all adventurers. Watch these pages for a detailed review of all these new products in the near future.

And now to your letters, most of which concern The Pawn. Dan Proops from London and Jonathan Evans of Pretoria, South Africa, cannot get past the boulders. See the Hints section for instant enlightenment.

Among other problems, Jonathan doesn't know what to do with the floorboards in the tree and has found that the Guru does not want any Perrier water – what does he want? Help is at hand.

Mark Powell of Lewes in Sussex has completed Hollywood Hijinx and I am pleased to publish some of his hints for that adventure since many of you are still struggling gamely with it.

Donna Thresher of Hockley, Essex, says she has lost the novella which came with The Pawn and now can't load the game as she doesn't remember the passwords. I'm not surprised you can't recall the passwords – potentially, there as many of them as there are words in the novella.

Rainbird use the novella as a sensible and effective anti-piracy measure, the reasoning being that if someone hasn't got the documentation they probably didn't buy the original game.

It's bad luck on any genuine owner who loses the essential documentation, though. The only thing I can suggest, Donna, is that you write to Rainbird explaining the position and enclosing proof of purchase and perhaps they will be kind enough to let you have another copy of the novella. Better take good care of such documentation next time, because all Rainbird adventures use this password protection method.

Arvin Norris of Cwmbran is having a spot of difficulty with Ultima IV. He would like to know the exact position of the mandrake root using the sextant and requires the correct order of the three parts of the word of passage. Can any reader help?

Alternate Reality – The Dungeon is causing some anguish to Dave Hall: In his own words he's ''a somewhat frustrated, droopy-eyed adventurer from Sheffield''.

He wonders how you can get a city character into the dungeon without getting him killed off immediately. Why does the oracle tell you of quests that cannot yet be completed? What are the answers to the gargoyle's riddles? And why does the ferryman insist on taking Dave downriver contrary to what the manual says? A tall order – can any player assist?

I'm afraid I've changed my mind about giving a rundown of how all the points are scored in The Pawn. I realised after mentioning it in the December issue that to do this in one go would mean giving too much of the game away and spoiling it for players still wrestling with it.

Instead, and starting now, I am providing a serialised partial solution – so you'll still have some work to do and you won't get all the help at once. My thanks for possible solutions go out to many readers, but especially to Jason Murphy of Manchester, Phil Latham of Macclesfield and Mark Sarul of Barwell, Leics. Farewell for now. Keep those lamps bright!

## Hints & tips

### HOLLYWOOD HIJINX

● *Need an underwater light source?* Light one of the candles with the red match and coat the green match with the wax. Take another candle with you and light it with the wax-coated match when appropriate.

● *Don't know what to do with the piano?* Play the tune that Aunt Hildegard likes. Push the piano North and remove the pillar from the south crawl space. Push the piano South twice to gain access to another treasure in the crawl space.

● *Puzzled in the bomb shelter?* Push the right end of the plank down, pull the chain, stand on the right end of the plank then light the rope.

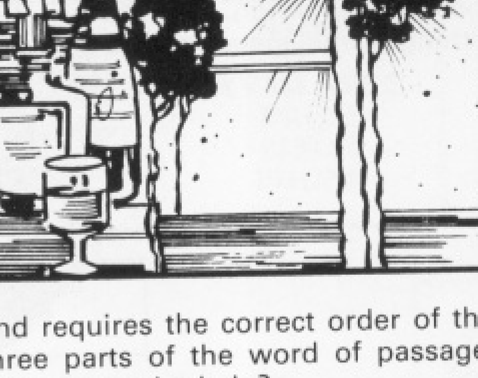
### THE PAWN: Solution – Part one

Look at your clothes. Go East. Say to Kronos "Greetings". Take note. Ask Kronos about wristband. Take chest. Go to palace gardens. Look for a key. Look in fountain. Go to shed. Look for a rake, hoe, trowel and pot. Show something to guards. Go to Guru.

Cover wristband. Go to large boulder. Tie rake and hoe together with shirt. Lever boulder with rake and hoe. Climb rocks. When the adventurer appears, give him the chest.

Get on horse. Get some snow. Return to Guru. Go to clearing. Look at stump. Mix items to get a white. Go to large tree. Unlock door. Enter and close door. Lift boards. Go down stairs.

● *Part two is next month.*





# Calendar maker

## Othman Abdul Hamid takes a look backwards and forwards in time

**ACCORDING to the book Inventions That Changed The World the present Gregorian Calendar began to be used on Friday October 15, 1582 when Pope Gregory XIII revised the old Julian calendar. This then became the standard for most of Europe, although Britain did not begin to use it until 1752.**

Bringing Pope Gregory up to date, this program will print – on-screen or to an Epson-compatible printer – a monthly calendar from October 1582 to any future date you care to enter.

When the program is first run you are asked to enter the month and year you wish a calendar for. The month must be entered as a number from 1 to 12: For example, if you want January you must enter 01, and so on. The year must be a four figure number greater than 1582, this being the date of the newly recorded calendar.

Once the date has been entered you are asked to enter the size of the calendar you want to print – (S)mall, (M)edium or (L)arge. You also have the option to have no printer, which means that the calendar is only displayed to screen. This is achieved by pressing any other key other than one that chooses size.

When the size is chosen the program will calculate the new calendar. If at this point you change your mind, just press C to start again, or press P to print the calendar.

The program works by counting the days interval between the year 1200 and the date entered – the year 1200 is taken as starting point to simplify calculation.The days are then converted into weeks and the remaining days – obviously a number not divisible by seven – determine the position of the last date in the calendar.

To check the accuracy of the program I have used it to check many well known historical dates, and found it to be accurate every time.

FEBRUARY 1988

| | | | | | |
|---|---|---|---|---|---|
| *SUNDAY* | | 7 | 14 | 21 | 28 |
| *MONDAY* | 1 | 8 | 15 | 22 | 29 |
| *TUESDAY* | 2 | 9 | 16 | 23 | |
| *WEDNESDAY* | 3 | 10 | 17 | 24 | |
| *THURSDAY* | 4 | 11 | 18 | 25 | |
| *FRIDAY* | 5 | 12 | 19 | 26 | |
| *SATURDAY* | 6 | 13 | 20 | 27 | |

### PROGRAM VARIABLES

| | |
|---|---|
| **LINE$** | Screen lines to be dumped to printer |
| **MONTH$** | Names of the months |
| **DAY$** | Names of the days |
| **MONTH(nn)** | Number of days in each month stored in an array |
| **MONT** | Month of the calendar . |
| **Y** | Year of the calendar |
| **MDAY** | Number of days between January 1 and the the last day of the month |
| **LPYEAR** | Number of leap years since the year 1200 |
| **LCENTURY** | Century years (such as 1200,1600,2000) which are leap years |
| **YRDAY** | Number of days since the year 1200 |
| **LEAP** | Extra days in leap years |
| **TOTAL** | Actual number of days since the year 1200 |
| **LAST** | Number to determine position of last date in the calendar |

### PROGRAM BREAKDOWN

| | |
|---|---|
| **70-200** | DIM strings,reads and checks inputs |
| **230-310** | Counting days, adding extra days in leap years |
| **340-350** | Convert days to weeks, calculate positions of dates on the calendar |
| **370-460** | Print calendar on screen |
| **490-570** | Make selection: Restart or hard copy |
| **550-690** | Trap lines, data and printer codes |

```
10 REM ******************************
20 REM *      CALENDAR MAKER        *
30 REM *   BY OTHMAN ABDUL HAMID    *
40 REM *      (c) ATARI USER        *
50 REM ******************************
70 DIM LINE$(120),MONTH$(10),DAY$(12),
MONTH(12)
80 ? CHR$(125):POSITION 8,5:? "CALENDA
R MAKER PROGRAM"
90 POSITION 10,7:? "BY OTHMAN A. HAMID
"
100 POSITION 11,10:? " MONTH     YEAR
":POKE 752,0
110 REM  TRAPPING INPUT ERROR
120 TRAP 560:POSITION 11,12:INPUT MONT
:IF MONT<1 OR MONT>12 OR MONT<>INT(MON
T) THEN 550
130 TRAP 570:POSITION 21,12:INPUT Y:IF
 (MONT<10 AND Y<1583) OR Y<1582 OR Y<>
INT(Y) THEN 570
140 POKE 752,1:? :? "IF YOU USE EPSON
PRINTER SELECT       CALENDAR SIZE":?
150 ? " S  = SMALL   M  = MEDIUM":? :?
 " L  = LARGE   ANY KEY  NO PRINTER"
160 OPEN #1,4,0,"K:":GET #1,K:CLOSE #1
170 IF K=83 THEN SIZE=1
180 IF K=77 THEN SIZE=36
190 IF K=76 THEN SIZE=40
200 ? CHR$(125):? "THINKING ..."
210 REM  COUNTING DAYS SINCE 1200 A.D
220 REM
230 MDAY=0:LPYEAR=0:CENTURY=0:LCENTURY
=0:RESTORE 590:FOR A=1 TO MONT:READ D,
MONTH$:MDAY=MDAY+D:MONTH(A)=D:NEXT A
240 FOR A=1200 TO Y-1 STEP 4:LPYEAR=LP
YEAR+1:NEXT A:FOR A=1200 TO Y-1 STEP 1
00:CENTURY=CENTURY+1:NEXT A
250 FOR A=1200 TO Y-1 STEP 400:LCENTUR
Y=LCENTURY+1:NEXT A
260 YRDAY=365*(Y-1200):LEAP=LPYEAR-CEN
TURY+LCENTURY
270 REM
280 REM  ADDING 1 TO FEBRUARY IF LEAP
YEAR
290 IF MONT>1 AND Y/400=INT(Y/400) AND
 Y/100=INT(Y/100) THEN MDAY=MDAY+1:MON
```

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◀ From Page 11

```
TH(2)=MONTH(2)+1:GOTO 340
300 IF MONT>1 AND Y/100=INT(Y/100) THE
N 340
310 IF MONT>1 AND Y/4=INT(Y/4) THEN MD
AY=MDAY+1:MONTH(2)=MONTH(2)+1
320 REM
330 REM  TOTALLING DAYS, DETERMINE POS
ITION OF FIRST DATE IN CALENDAR
340 RESTORE 610:TOTAL=MDAY+YRDAY+LEAP:
DAY=INT(10*(TOTAL/7-INT(TOTAL/7))):FOR
 A=8 TO DAY STEP -1:READ LAST:NEXT A
350 DATE=MONTH(MONT)+LAST:IF DATE-MONT
H(MONT)>6 THEN DATE=DATE-7:REM  MATCH
DATE WITH CORRECT DAY
360 OPEN #2,5,0,"E:":REM  OPEN THE SCR
EEN EDITOR FOR FORCED READ MODE
370 ? CHR$(125):POKE 752,1:FOR A=4 TO
18 STEP 2:POSITION 1,A:? "------------
--------------------------":NEXT A
380 RESTORE 620
390 REM
400 REM  PRINT CALENDAR ON SCREEN
410 FOR A=5 TO 17 STEP 2:READ DAY$:POS
ITION 1,A:? DAY$:NEXT A
420 FOR VLN=37 TO 12 STEP -5:FOR HLN=1
7 TO 5 STEP -2:POSITION VLN,HLN
430 IF DATE>9 AND DATE<MONTH(MONT)+1 T
HEN ? DATE
440 IF DATE>0 AND DATE<10 THEN ? " ";D
ATE
450 DATE=DATE-1:NEXT HLN:NEXT VLN
460 POSITION 20-INT(LEN(MONTH$)/2)-3,2
:? MONTH$;"  ";Y
470 POSITION 7,19:? "   SWITCH  ON  PR
INTER   ":FOR A=1 TO 300:NEXT A
480 POSITION 7,19:? "Press Calendar  o
r  Print"
490 OPEN #1,4,0,"K:":GET #1,K:CLOSE #1
500 IF K=67 THEN RUN
510 IF K=80 THEN GOSUB 630:GOTO 230
520 GOTO 480
530 END
540 REM  TRAP LINES
550 IF MONT<1 OR MONT>12 THEN POSITION
 6,14:? CHR$(253);"INCORRECT MONTH
       ":GOTO 120:REM 11 SPACES
560 POSITION 6,14:? CHR$(253);"PLEASE
ENTER NUMBERS ONLY.":GOTO 120
570 POSITION 6,14:? CHR$(253);"ENTER 4
-FIGURE/BEYOND 1582":GOTO 130
580 REM
590 DATA 31,JANUARY,28,FEBRUARY,31,MAR
CH,30,APRIL,31,MAY,30,JUNE,31,JULY,31,
AUGUST,30,SEPTEMBER,31,OCTOBER
600 DATA 30,NOVEMBER,31,DECEMBER
610 DATA 2,3,0,4,5,0,6,7,8
620 DATA  SUNDAY    , MONDAY    , TUES
DAY   , WEDNESDAY , THURSDAY  , FRIDAY
    , SATURDAY
630 POSITION 2,19:? "
                      ":REM 38 SPACES
640 REM  PRINT HARD COPY
650 POKE 755,2:POKE 82,0:POSITION PEEK
(82),0:FOR A=1 TO 24:TRAP 690
660 REM  FOR EPSON
670 INPUT #2,LINE$:LPRINT CHR$(27);CHR
$(33);CHR$(SIZE);LINE$:NEXT A:? CHR$(1
25):CLOSE #2:RETURN
680 REM  OR SIMPLY  670 INPUT #2,LINE$
:LPRINT LINE$:NEXT A:? CHR$(125):CLOSE
 #2:RETURN  PLEASE  DELETE LINE 680
690 POKE 82,2:? CHR$(253):GOTO 470
```

**Get it right!**

| | | |
|---|---|---|
| 10 CP1 (Y) | 250 8YF (H) | 480 45K (G) |
| 20 CP2 (3) | 260 DJJ (D) | 490 39E (U) |
| 30 CP3 (X) | 270 DQT (2) | 500 D2R (R) |
| 40 CP4 (4) | 280 DUT (C) | 510 3KN (T) |
| 50 CP5 (Y) | 290 2Q0 (7) | 520 R1C (E) |
| 70 MM7 (W) | 300 KQK (4) | 530 DF5 (X) |
| 80 CHF (E) | 310 AGR (L) | 540 DCW (P) |
| 90 F5H (N) | 320 D3U (X) | 550 F7L (6) |
| 100 6EJ (G) | 330 D7U (L) | 560 4GY (S) |
| 110 CYS (1) | 340 D5J (T) | 570 74V (E) |
| 120 AR1 (4) | 350 LKR (1) | 580 DUW (3) |
| 130 FCV (V) | 360 6L1 (2) | 590 875 (S) |
| 140 RN6 (V) | 370 1HC (8) | 600 TW7 (6) |
| 150 7Y3 (H) | 380 XEF (4) | 610 CHF (M) |
| 160 2WA (6) | 390 DYU (D) | 620 TK6 (M) |
| 170 EXH (T) | 400 CUV (7) | 630 MGY (D) |
| 180 FA4 (3) | 410 QMD (4) | 640 DCX (7) |
| 190 FCV (A) | 420 YSF (9) | 650 Y3C (4) |
| 200 J9T (9) | 430 MDO (6) | 660 DLX (F) |
| 210 CYT (4) | 440 2OA (R) | 670 AE3 (P) |
| 220 D3T (8) | 450 3ON (K) | 680 DUX (U) |
| 230 1NH (S) | 460 C9R (Q) | 690 1KW (R) |
| 240 8QH (1) | 470 LO2 (F) | |

# Software Scene

# Gunfight at the corral – OK!

*Program: Gunslinger*
*Price: £14.95 (disc only)*
*Supplier: Datasoft/US Gold, Units 2 & 3 Holford Way, Holford, Birmingham B6 7AX.*
*Tel: 021-356 3388*

IN this graphical text adventure you play Kip Starr, an unemployed Texas ranger who has just received two telegrams from his old buddy, James Badland.

The first tells you that Badland is in a jail south of the border and, if this isn't enough, the second informs you he is about to hang in two days.

Not wanting to let your old friend down you pack your bags and your trusty six-shooter and get ready to leave. Then out of the blue, yet another nasty telegram arrives.

This one is much more sinister: "We've escaped from jail. Just a warning for you and that buddy of yours. Signed: The Dalton Brothers (all six of us)".

Your prospects don't look so bright when you find yourself stranded in the desert after riding your horse to death. But things pick up when a traveller comes across you and offers you a ride into Dawson City.

So there you have it: All you have to do is break into and out of jail. Then you must keep your appointment at the OK Corral for a shoot-out with the six Dalton brothers. Simple.

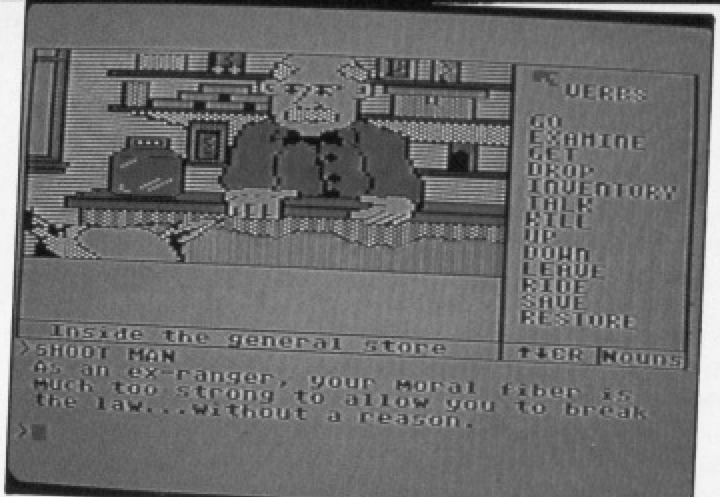
You find adventure in a gold-rush ghost town, an Indian village and a US Army fort, all generously scattered on your way to Mexico to save friend James from the hangman's noose.

Many other diversions stand in your way in the form of crooked poker games, runaway mine cars, dangerous waterfalls and ambushes. These are all presented using more than 100 very effective hi-res picture screens.

You can enter commands from the keyboard – in a fashion all keen adventure players should now be familiar with – or use a combination of joystick and keyboard inputs: A novel approach and fun.

The screen shows your location on the left and a menu of verbs, nouns and prepositions on the right.

You can also bring a compass on to the screen by moving the on-screen arrow into the area just to the left of the command screen. You can save a game at any time by highlighting the SAVE command in the verbs box. Whatever you do, don't save a game on a master disc.




If you are new to this form of entertainment here are a few hints: Always save at regular intervals – the West is very dangerous and you can be killed at anytime. Make a map – it's always useful to know where you're going. Also watch out for the Indians – they have a habit of collecting scalps.

All the items you find will be used for something, so don't go dropping them. A horse can make all the difference, so be careful where you leave one, and remember stealing one is a hanging offence.

If you encounter a dishonest character – and there are a few – remember this is the West and your gun speaks the only truth. For example, when I went into the saloon for a game of cards the man opposite me cheated. I didn't ask him to apologise: I just shot him dead – and he turned out to be Jessie Dalton – only another five to go!




This adventure is one of the largest I have ever played. The pictures are excellent, and I especially liked the one of the card player staring at me over his hand just before I shot him.

It's very playable and quite humourous in parts. Although not the most intriguing game ever, some thought is needed if you want finish and save James.

If you like adventures and fancy something a little different, Gunslinger is a must. It's originality and ease of use makes it a winner.

**Neil Fawcett**

| | |
|---|---|
| *Presentation* | 8 |
| *Atmosphere* | 7 |
| *Graphics* | 8 |
| *Puzzlement* | 6 |
| *Value for money* | 8 |
| *Overall* | 8 |

# Snazzy but slow




*Program: Transmuter*
*Price: £1.99*
*Supplier: Code Masters, Lower Farm House, Stoneythorpe, Southam Warwickshire, CV33 ODL.*
*Tel: 0926 814132*

IN the past Code Masters has only released two games on the Atari – Red Max and BMX Simulator. They are both graphically excellent, sonically superb and packed with playability. So it came as a welcome sight when I spotted the company's latest offering – Transmuter, a horizontally scrolling shoot-'em-up.

The story? Well, it seems that in the future the Sun becomes a red giant, and the extreme cold makes everybody go underground to keep warm. Up top, sentry robots and attack droids are kept in place to defend from possible invasion.

Time passes, and using Earth's resources, the remaining humans build ships and travel out to the stars, seeking a new home.

Settled in their new planet, people wonder what became of the Earth, so a single man is sent back to the home world in a new fighter carrying, at its core, a matter transmuter.

That is a device capable of transforming energy into separate forms for use in attack or defence.

You are that man, and on reaching the Earth you are attacked by the outer defences left a millennium ago. Activating the transmuter, you fly into battle – attack being your only chance of escape.

This story line covers what is actually a version of the Konami arcade game Nemesis. Yes, they're all there – speedups, missiles, double 45 degree shots, lasers, multiples and shields – all the features of Nemesis.

All except one thing – speed. And unfortunately all the snazzy features in the world can't help if a game is slower than the proverbial tortoise.

Once you complete a level you are confronted with a mother ship, just like in Nemesis. When this is destroyed you have a bonus level with all sorts of starships flying at you.

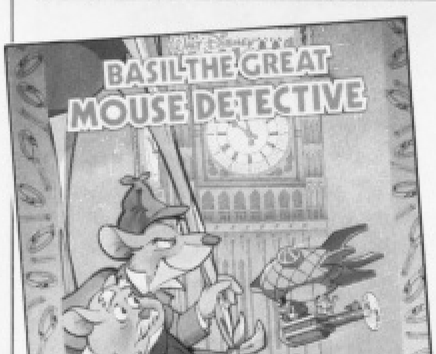
Yet the game gets incredibly easy if you have speeded up firepower and two multiples, because nothing gets past you..

Graphically, Transmuter is not bad, with average sound and gameplay. Though it's slow, if you really are desperate to play Nemesis on your Atari, at £1.99 I don't suppose it'll burn that much of a hole in your pocket.

**Robert Swan**

| | |
|---|---|
| ***Sound*** | 7 |
| ***Graphics*** | 8 |
| ***Playability*** | 6 |
| ***Value for money*** | 7 |
| ***Overall*** | 7 |

# There's a mouse loose..




*Program: Basil the Great Mouse Detective*
*Price: £9.99*
*Supplier: Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.*
*Tel: 0742 753423*

221B Baker Street is home to the two greatest detectives in the world. Upstairs is Sherlock Holmes, and below in the basement is a mouse named Basil, the most intelligent rodent mind ever.

This keen, sharp-witted mouse and his colleague – the amiable Dr. Dawson – have solved many a crime. But now the evil Professor Rattigan has kidnapped Dawson, and it is down to you as Basil to find and rescue your friend and partner.

As the game loaded, the distinctive tones didn't sound quite as clear as they should, but then up came the message: "Please wait, now loading Basil". What appeared was a shaded loading screen of Basil in action.

What I certainly was not prepared for was the wait – about 20 minutes after loading started the screen advised "Please rewind tape to start of side 2 and press spacebar". Shades of Gauntlet.

After approximately half an hour the game was in so, picking up my trusty joystick I set about it.

The graphics are in 16 shades of brown for the playing area, and the score area is blue, red, green and yellow. Need I go on? It's incredible.

The programmers of this visual feast have done some really fantastic work using the limited screen pallette, and the sprites are cute and well detailed. The display is clear and easy to see, with more than adequate sound. The gameplay is a little difficult to start with – especially finding which items to use and examine – but you get used to it after a while.

What of the baddies? Enemy mice roam the kerbs and gutters of London. Slight contact with them reduces your energy and prolonged contact is lethal.

To reach high places you must leap and bound. Timing the jumps and finding the exact spot to do so takes trial and error – and time.

In fact, my overall impression was one of time: Time to load, time to get used to the controls and gameplay, and time to tackle the game itself.

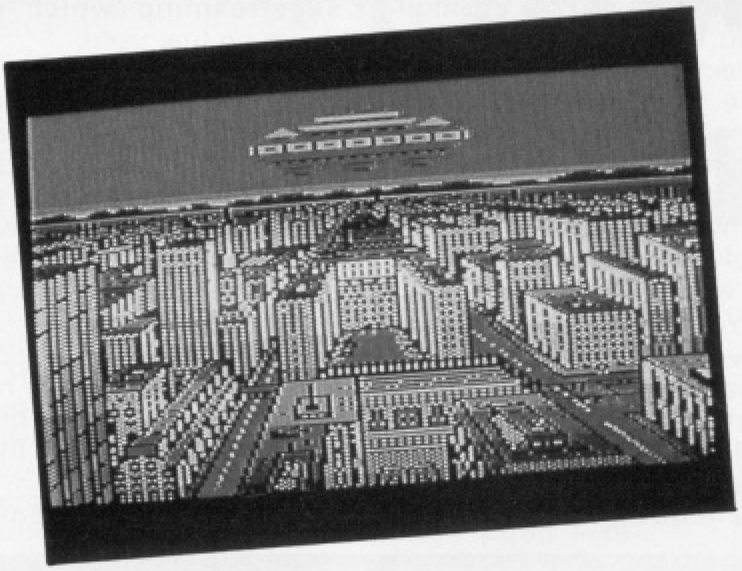
Basil the Great Mouse Detective looks great, plays well, and should have you stuck to your keyboard till the early hours.

**Keith Pattison**

| | |
|---|---|
| ***Sound*** | 7 |
| ***Graphics*** | 10 |
| ***Playability*** | 7 |
| ***Value for money*** | 8 |
| ***Overall*** | 8 |

# Adventure of a lifetime

*Program: Alternate Reality: The Dungeon*
*Price: £19.99 (disc only)*
*Supplier: Datasoft/US Gold, Units 2 & 3 Holford Way, Holford, Birmingham B6 7AX.*
*Tel: 021-356 3388*



THE Dungeon is the second in the Alternate Reality series of role-playing adventure games. It's the sequel to the City, Part One, and is just as much fun.

The package contains three discs, a witty and amusing guide book, a basic map of level one, a letter from Trilog – another poor sole lost in Alternate Reality – as well as a complete map of the Dungeon.

Though this is of no real use, it looks pretty. However I would advise everyone to read the guide book diligently if they are to understand the game to the full.

The opening sequence which sets the scene is great fun to watch and listen to. As the music plays in the background the words are printed on the screen, and all this on top of a 3D rotating star field reminiscent of Dr Who.

As in the City, the game begins with you being abducted from Earth in a gigantic spacecraft. This all happens on screen with you transported to another planet, an Alternate Reality – hence the original title.

After this you find yourself in a room with only one exit. This faces the Dungeon and is covered by a force field with numbers spinning around above the lintel.

As you pass through, the numbers freeze as the Dungeon guide remarks: "As if you had pulled the lever to a cryptic slot machine". Their frozen status – referred to as stats for the remainder of the game – determines your levels of stamina, charm, strength, intelligence, wisdom, skill, health and hit points.

You are now in the Dungeon, which is where the fun starts. In this maze of corridors and sewers you can meet all sorts of creatures – and probably will.

Near the entrance is the Damon and Pythias shop where you can buy almost anything.

And don't forget to barter with the owner – he nearly always gives in.

Scattered throughout the Dungeon corridors are lots of doors, but if you thought that doors were just doors you're wrong.

In this game there are magic doors invisible doors – I never saw one – and those that you can only open from one side.

Included in the guide is a grid you can photocopy and draw on – mapping is a must if you don't want to get yourself lost.

Eventually, as you work your way round you encounter a thief, a giant bat, an acolyte and other equally obnoxious creatures. When this happens you have various choices: Charge, run away, transact and so on. Fighting is usually the best option, because if you win you can loot the body for treasure or weapons – macabre but rewarding.

Defeat usually ends in your demise, but you're not really dead – the Dungeon is nice that way and you can be resurrected for a small fee. In addition, if you are low on hit points you can always go to the Retreat to recoup.

Because the Dungeon is so dangerous I found it very useful to save a character at regular intervals. Fans of the City will be pleased to know that their existing characters are transferable, which gives you a much better chance of survival.

Movement is controlled by a joystick in port one or the keyboard. All other commands are single key entry.

My favourite is P, for pause, which stops the action at any time without affecting the game.

Other commands include U to use any item you are presently carrying, and D to drop an item if you get too overburdened with stolen goods.

Various menus can be called up at any time and this, mixed with your stats at the top of the screen, action sequences in the middle, instructions and information at the bottom and having to flip discs all the time make the gameplay a little confusing.

The discs are constantly being swapped – although larger memory machines don't require as much updating.

All the on-screen text style is in old English. This is very appropriate but a little difficult to read at times without squinting.

All in all, this is another superb package from Datasoft and well worth every penny. The graphics are superb and the music played throughout the game is stunning.

**Ruth James**

| | |
|---|---|
| *Sound* | 10 |
| *Graphics* | 9 |
| *Playability* | 10 |
| *Value for money* | 10 |
| *Overall* | 10 |



# Stock car challenge

*Program: Talledega*
*Price: £1.99*
*Supplier: Top Ten, 12 Chiltern Enterprise Centre, Station Road, Theale, Berkshire RG7 4AA.*
*Tel: 0734 303663*

RICHARD Petty, king of the Nascar Super Stocks race scene, challenges you to a gruelling race against 18 other drivers, each programmed to beat you.

This is Top Ten's description of it's latest release. Basically, it's Pitstop plus a large dose of Pole Position. You have to race around a selected track – or choose one at random – inside the time limit to qualify for the main event.

You have to beat 19 racers – including Richard Perry in a blue flashing car – in order to win.

You can soon learn several tactics to help you beat the others – using turbo boosters which use up a lot of fuel and cut down control on bends, or sneaky manoeuvres such as slipstreaming which cut down on fuel used.

You can also cut turns, which allows you to take a certain line through bends at 250mph – the car will do a four wheel drift but you can retain full speed or even lean on the other cars to shunt them out of the way.

For balance there are things to hold you back or even put you out of the race – engine trouble is one but it is quickly remedied by a pitstop.

I didn't think Talledega was up to much graphically and its age is showing with old sound and gameplay. All in all it's not likely to make you race down to your local stockist to buy.

With Pole Position being sold nowadays for about £2.99, I believe you'd be better off spending the extra pound on that. **Robert Swan**

| | |
|---|---|
| *Sound* | 5 |
| *Graphics* | 5 |
| *Playability* | 4 |
| *Value for money* | 4 |
| *Overall* | 5 |

# Jump at this one

*Program: Twilight World*
*Price: £4.99*
*Supplier: Atari, Atari House, Railway Terrace, Slough, Berkshire SL2 5BZ.*
*Tel: 0753 822914*

ISN'T it nice to see a familiar face again after so long? Yes it's true: Atari is now back in the software field after a long rest.

Its last release was the disc-only Star Raiders II last Christmas. Well, now all you proud tape owners can relish in Atari's comeback too, with this new offering from Matthew Trimby – author of Mastertronic's Crystal Raider.

Twilight World centres around you as a guy with a gun and the ability to leap over vast pits of flame while avoiding nasties and collecting gems.

The nasties come at head, chest and feet height, and you can duck, jump or blast your way through the caverns ahead. A jet pack is also at your disposal a little later in the game.

The graphics are very good, and run along the line of the main character in US Gold's older titles such as Scooter, Ollie's Follies and Ghost Chaser – except they are much larger.

Overall, a nice jump-shoot-collect game: A sort of Ollie's Follies in Hell.

**Robert Swan**

| | |
|---|---|
| *Sound* | 7 |
| *Graphics* | 9 |
| *Playability* | 8 |
| *Value for money* | 8 |
| *Overall* | 8 |

# Jumping back

*Program: Henry's House*
*Price: £1.99*
*Supplier: Mastertronic, 8-10 Paul Street, London EC2A 4JH.*
*Tel: 01-377 8411*

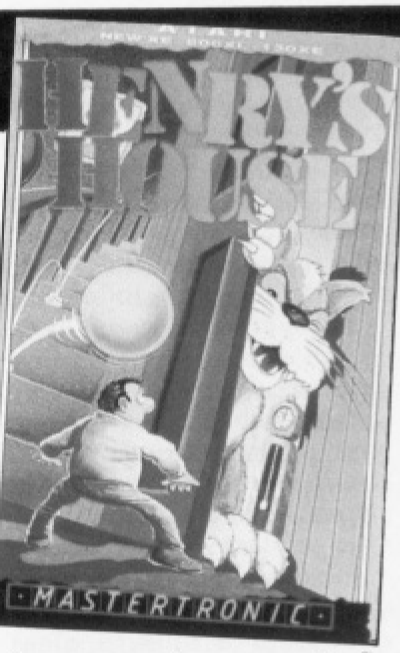
POOR Henry's got a bit of a problem. Although daddy happens to be the king, this hasn't stopped him from going where he's not supposed to – the royal laboratories. Nor has it prevented him from drinking a potion which he shouldn't.

All this has resulted in a six inch high prince in a lot of trouble.

Henry must now traverse many different rooms, collecting items on the way that will restore him to full size. These vary from eggs and food mixers, to boots and crowns – and some rooms contain televisions.

As you've probably guessed by now, you play Henry in this platform-jump-collect game. But somehow this has something which other offerings like Jet Set Willy didn't – it's highly playable. In addition control is a lot easier than in similar games.

Though the first few screens are a little difficult to start with, once you have managed to navigate your way through them things seem to fall into place and




the game gets progressively easier.

One thing I didn't like was that you die if you fall from too great a height. I can only suppose that if you're six inches tall, everything's a great height.

The graphics are excellent and the sound adequate – I especially liked the rendition of Rule Brittania at the beginning. The game is certainly worth £1.99 of anyone's loot.

While the plot may be pretty thin for what is essentially a platform game with royal overtones, this is a must. We certainly were amused.

**Bob Powers**

| | |
|---|---|
| *Sound* | 7 |
| *Graphics* | 7 |
| *Playability* | 9 |
| *Value for money* | 10 |
| *Overall* | 9 |

# A winning combination

## NEIL FAWCETT takes a close look at two Atari software giants

**A LOT of companies have found success in the world of computer products, but perhaps the two largest and best known in the Atari field are MicroProse Software and Origin Systems.**

These two giants of the software world have now agreed to unite in a venture and as a result a massive range of quality software will soon be marketed throughout Europe – and that is good news for all of us.

MicroProse is a subsidiary of MicroProse Software Inc. of Hunt Valley, Maryland, USA. The parent company was founded by Sid Meier and ex-fighter pilot "Wild" Bill Stealey. Since its formation in 1986 MicroProse has become one of the leading companies in the field of simulation games. The software is of a very high quality, and packaging and instructions are consistantly superb.

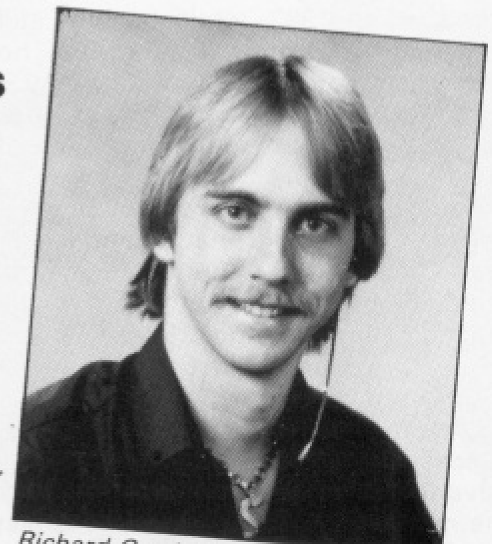
Some of the titles that made MicroProse famous in the 8 bit Atari world can be seen in the panel below. These products, and many more, have always been a popular choice for software collections. This popularity can be put down to their high quality and availability on both tape and disc – a factor that a lot of companies forget about these days.

All the games are thoroughly researched before being released. For example, when Sid Meier was writing F-15 Strike Eagle he read everything available on the American Air Force's most sophisticated multi-role combat aircraft.

The cockpit display, performance figures and weapons systems have been duplicated as closely as possible on the computer simulation. If this wasn't enough, Stealey hired F-15 pilots to test the final product. Now that's what I call research. This is why MicroProse products are considered to be the Rolls Royce of the software industry.

Origin Systems was founded in 1983 by a team of four: Richard and Robert Garriot, their father Owen and Charles Beuche. Today the company employs around 30 people and uses between 10 and 15 freelance programmers. Anticipated sales figures are over four million dollars a year.

The history of this company goes back long before 1983 to a young Richard Garriot, at that time a high school student. For many years he had an interest in fantasy role-playing games – TSR's Dungeons and Dragons. This fascination led to him programming the school's single punchcard-operated computer with his own mini adventures.



*Richard Garriot author of Ultima*

His first programming experience came when he went to Gunn High School where he logged many hours on an Apple computer. This is also where, on the very first day at school, he picked up his now famous nom-de-plume – Lord British.

This was because when people greeted him with "Hi" he replied with the unconventional "Hello". People said: "What a proper way you have of talking – you must be British!". The nickname stuck, and later Richard placed the Lord in front. He now uses the name for the main character in his famous Ultima series – but more of that later.

When Richard left school he got a job in a computer store back home in Texas, programming its Apple computers. He wrote quite a lot of graphic adventures and one day his boss – unbeknown to Richard – showed one to an up-and-coming software company – California Pacific. In 1979 the

**MICROPROSE/ORIGIN PRODUCTS**

| Product | Cassette price | Disc price | Company |
|---|---|---|---|
| F-15 Strike Eagle | £9.95 | £14.95 | MicroProse |
| Solo Flight | £9.95 | £14.95 | MicroProse |
| Silent Service | £9.95 | £14.95 | MicroProse |
| Kennedy Approach | £9.95 | £14.95 | MicroProse |
| Spitfire Ace | £9.95 | £14.95 | MicroProse |
| Hell Cat Ace | £9.95 | £14.95 | MicroProse |
| Mig Alley Ace | £9.95 | £14.95 | MicroProse |
| Conflict in Vietnam | £9.95 | £14.95 | MicroProse |
| Crusade in Europe | £14.95 | £19.95 | MicroProse |
| Decision in the Desert | £14.95 | £19.95 | MicroProse |
| Nato Commander | £9.95 | £14.95 | MicroProse |
| Ultima | | £19.95 | Origin Systems |
| Ultima II | | £19.95 | Origin systems |
| Ultima III | | £19.95 | Origin Systems |
| Ultima IV | | £19.95 | Origin Systems |
| Ogre | | £19.95 | Origin Systems |
| Autoduel | | £19.95 | Origin Systems |

*Some of the products that have made MicroProse famous*

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company published Richard's first game – Akalebeth – and it sold a very healthy 25,000 copies.

Encouraged by this success Richard decided to write another game. This eventually emerged as Ultima, one of the most successful adventure games ever. He sold the rights to Sierra On-Line, and it went on to sell around 50,000 copies. After this in 1981 came the sequel, Ultima II, which was also licensed by Sierra On-Line, and sold around 100,000 copies.

Richard always had strong feelings as to how his games should be marketed, so in 1983, while he was still working on Ultima III: Exodus, he decided to form his own company – Origin Systems – with his brother Robert, who had just come out of business school.

They also asked their father Owen – a former NASA astronaut – and a programmer – Charles Beuche – to join them. Just to show that this is a family business they also got Helen Garriott to do the superb illustrations in the Ultima booklets.

Ultima III was another massive success, far outselling the previous adventures. Now the scene was set for the next challenge – Ultima IV: Quest for the Avatar, which has sold over 200,000 copies.

However, the Ultima series aren't the only packages that Origin are famed for. Admittedly, the company's products are what you could call highbrow, needing a lot of thought and time, but they do move from the fantasy adventure theme.

For example, in Ogre you challenge the might of a cybernetic supertank programmed to annihilate anything in its path. The game is set in the 21st Century and you must deploy conventional weapons and infantry to protect a defence post. It's a conversion of a Steve Jackson board game, and is a pleasure to play.

In another – Autoduel, classed as a strategic role-playing game – you again enter the 21st Century, this time in the NE of America, where death lurks around every bend of the freeway.

This is the first product to be launched under the MicroProse/Origin banner and is a nice addition to the already impressive joint range. It's based on a Steve Jackson board game called Car Wars and, again, is a very close translation. As with the Ultima series, the packaging is excellent: The box contains a miniature toolkit – a very nice touch.




*The world of Sosaria, elegantly portrayed on the cloth cap*

But now the 64 million dollar question: How did Origin and MicroProse get together?

This was down to Bill Stealey, president of MicroProse in the USA. Bill is a business associate of Robert Galliott who was intending to set up a UK company with Stewart Bell. He asked if Origin was interested in a joint venture arrangement – the company already had something going in Japan where the Ultima series is very popular.

Initially MicroProse will launch seven Origin titles on the British and European markets, including the Ultima series. They have been revamped and include booklets and a beautifully made cloth map showing the world of Sosaria. It's worth buying for that alone, never mind the playability.

If you're into role-playing games and strategic simulations, the future seems very rosy indeed for the Atari 8 bit computers. Ultima V: Warriors of Destiny will hopefully be available around March for around £19.95.

In it the adventure continues with Lord British leaving Britannia to explore the newly-discovered underworld, but all contact between the good King and his companions is lost. In Britannia, pandemonium breaks out when the sole survivor of the expedition returns to tell the tale.

You are summoned in an attempt to discover what has happened to the King and defeat the evil growing in the lands. Sounds great fun. New features added include eight dungeons, more animated monsters and 30 new towns to explore – some of them with as many as five levels.

You can choose from 10 people to come on the quest with you – up to six at any one time – and it's also possible to have interactive conversations with more than 200 characters. The combat system has been redesigned and should give more realism to the game. With all these options this can only be another winner for Lord British.

MicroProse plans to release a new simulator called Gunship later this year to complement its already large range. And if it is up to the usual quality it will be well worth waiting for.

# LIGHT GUN BLASTER

## A super shoot-'em-up for the XE games system from ANDRÉ WILLEY

**FOLLOWING last month's examination of the new Atari XE Games System with its accompanying light gun, here's something else for you to do with your new-found toy. Shooting bugs is all very well, but it certainly doesn't help you to use the gun from within your own software, so Light Gun Blaster was written as part game and part utility.**

It's fairly simple – but very playable and quite addictive. I'm not claiming it's going to be another Star Raiders, but some of the routines may well be useful to you for your own games.

After keying in the program and checking it with Get It Right!, run it and you'll see the main menu screen. You can use the Start, Select and Option keys to adjust the game settings for skill and speed, then simply pull the light gun trigger to commence play.

The aim of the game is very straightforward, but it takes some fast reactions to get a high score on the top level. You will see a grid of coloured squares – with more squares on the higher levels. These will change colour as the game progresses, and all you have to do is decide which colour is the most common and blast away at it. But make sure you aim well – you'll lose points for hitting the less common colours or the border.

So, how does it work? The light gun routine starts at line 100, and this returns two variables – *H* and *V* – which contain the Horizontal and Vertical position of the gun.

You might find that you need to adjust the numbers used to calculate *H* for your own TV, as different sets seem to return different values. The most likely changes will be to the number 89 on line 130 or the number 160 on line 140.

You will notice that the screen flashes white for a moment when you pull the trigger, but that's not just for effect. The light sensitive diode used inside the gun works best when the screen is fairly bright – indeed it won't work at all on a black background.

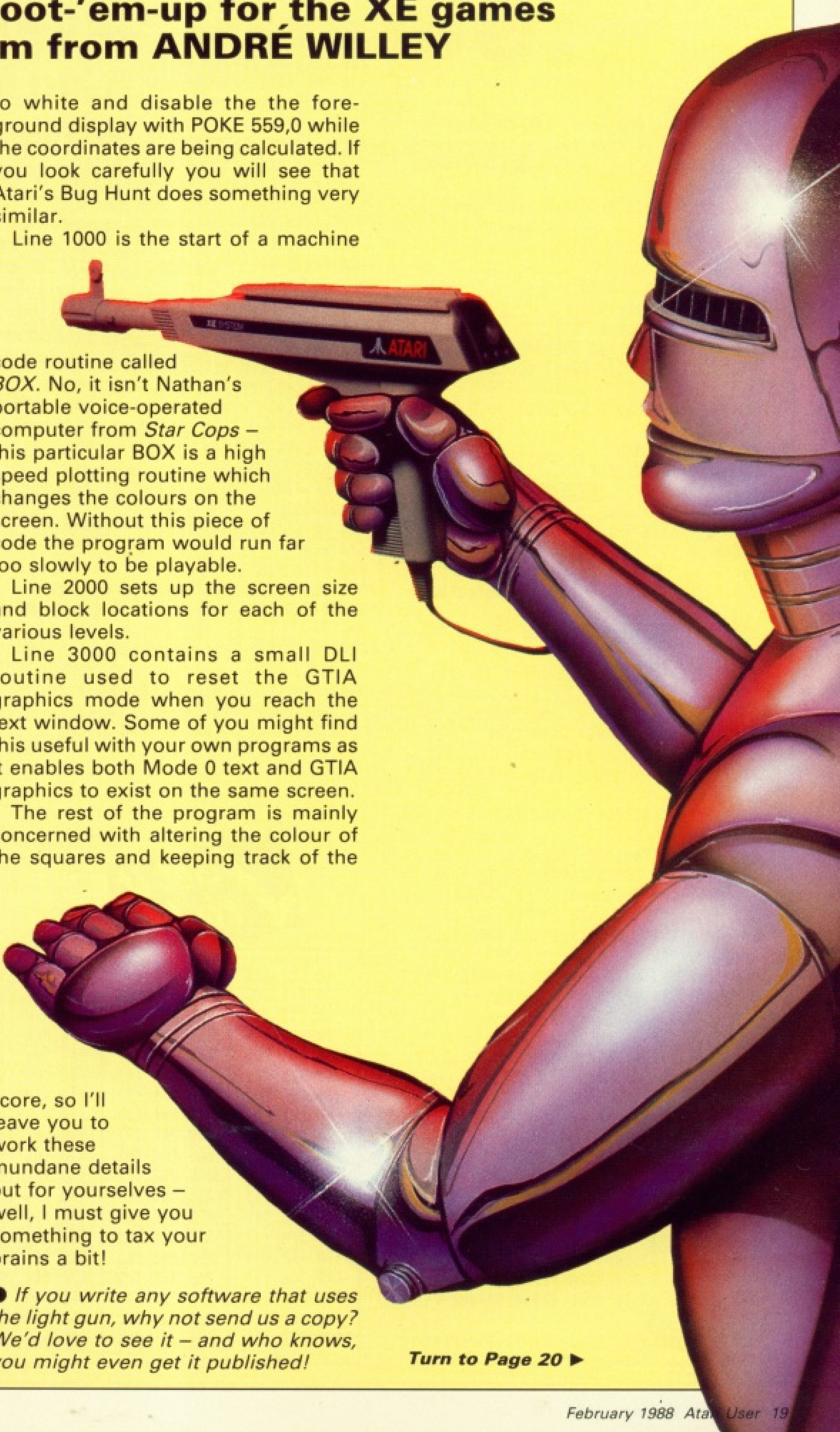
To get around this little problem all I've done is set the background colour to white and disable the the foreground display with POKE 559,0 while the coordinates are being calculated. If you look carefully you will see that Atari's Bug Hunt does something very similar.

Line 1000 is the start of a machine code routine called *BOX*. No, it isn't Nathan's portable voice-operated computer from *Star Cops* – this particular BOX is a high speed plotting routine which changes the colours on the screen. Without this piece of code the program would run far too slowly to be playable.

Line 2000 sets up the screen size and block locations for each of the various levels.

Line 3000 contains a small DLI routine used to reset the GTIA graphics mode when you reach the text window. Some of you might find this useful with your own programs as it enables both Mode 0 text and GTIA graphics to exist on the same screen.

The rest of the program is mainly concerned with altering the colour of the squares and keeping track of the score, so I'll leave you to work these mundane details out for yourselves – well, I must give you something to tax your brains a bit!




● *If you write any software that uses the light gun, why not send us a copy? We'd love to see it – and who knows, you might even get it published!*

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```
10 REM LIGHT GUN BLASTER
11 REM BY ANDRE WILLEY
12 REM (C)ATARI USER
20 DIM SCORE(8),BOX$(70)
30 GOSUB 1000
40 CURR=0:HIGH=0:DIFF=3:SPEED=8:COLS=3
:FINAL=60
50 REM RETURN TO MENU VIA HERE
60 FOR I=0 TO 8:SCORE(I)=0:NEXT I
70 GOTO 200
100 REM TEST GUN POSN. & MAKE SOUND
101 POKE 559,0:POKE 704,15:TIME=PEEK(2
0):FOR I=1 TO 1 STEP 0:IF PEEK(20)=TIM
E THEN NEXT I
110 POP :V=INT((PEEK(565)-18)/93*191):
H=PEEK(564):IF H<40 THEN H=H+227
111 IF V>191 THEN V=191
112 IF V<0 THEN V=0
130 H=H-89:IF H<0 THEN H=0
140 H=INT(H/160*79):IF H>79 THEN H=79
150 POKE 704,0:POKE 559,34
160 FOR I=10 TO 100 STEP 10
170 SOUND 0,I,4,I/100*12:SOUND 1,I,10,
10
180 NEXT I:SOUND 0,0,0,0:SOUND 1,0,0,0
190 RETURN
200 REM MAIN MENU
201 GRAPHICS 0:POKE 752,1:POKE 764,255
:POSITION 11,1:? "LIGHT PEN BLASTER"
205 POSITION 1,4:? "Written for Atari
User by Andre Willey"
210 ? :? :? " START  Difficulty le
vel:    ";DIFF
220 ? :? " SELECT  Number of colours:
  ";COLS
230 ? :? " OPTION  Speed of play:
  ";SPEED;" "
240 ? :? " RETURN  Time limit (secs):
  ";FINAL;" "
245 ? :? :? "        Last Score: ";CU
RR:IF CURR>HIGH THEN HIGH=CURR
250 ? :? "         High Score: ";HIGH
251 ? :? :? "   (Pull trigger on Gun t
o start)"
255 IF PEEK(53279)<7 THEN 255
260 KEY=PEEK(53279)
261 IF PEEK(764)=12 THEN 320
265 IF KEY=7 AND STICK(0)<15 THEN 260
270 IF KEY=6 THEN S=1:GOSUB 4000:DIFF=
DIFF+1:IF DIFF=6 THEN DIFF=1
280 IF KEY=5 THEN S=5:GOSUB 4000:COLS=
COLS+1:IF COLS=8 THEN COLS=2
290 IF KEY=3 THEN S=12:GOSUB 4000:SPEE
D=SPEED+1:IF SPEED=11 THEN SPEED=1
310 IF STICK(0)<15 THEN 205
311 GOTO 400
320 POKE 752,0:POKE 764,255:POSITION 0
,22:? CHR$(156);" What is the new time
 limit ";:INPUT FINAL
330 IF FINAL<10 OR FINAL>999 OR FINAL<
>INT(FINAL) THEN ? CHR$(253);:GOTO 320
340 POKE 752,1:POSITION 13,22:? CHR$(1
56):GOTO 205
400 REM INITIALISE GRAPHICS SCREEN,
    SET COLOURS AND DRAW FIRST SCREEN
410 CURR=0:ACROSS=DIFF+2:SCORE(0)=0-IN
T((DIFF^2)/3):OK=1
420 GRAPHICS 8:SCREEN=PEEK(88)+PEEK(89
)*256:POKE 87,10:POKE 623,128:POKE 752
,1
500 RESTORE 510:FOR I=704 TO 712:READ
A:POKE I,A:NEXT I:? :?
510 DATA 0,200,84,150,20,11,50,194,0
520 GOSUB 3000:GOSUB 2000
530 FOR J=0 TO ACROSS-2
540 FOR I=0 TO ACROSS-1
550 X=I*(W+1):Y=J*(D+6):ADDR=SCREEN+X/
2+Y*40+OFF
560 COL=INT(RND(0)*COLS+1):COLOR COL
570 A=USR(ADR(BOX$),ADDR,W,D):IF COL>0
 THEN SCORE(COL)=SCORE(COL)+1
580 NEXT I
590 NEXT J
600 POKE 20,0:POKE 19,0
610 REM MAIN PROGRAM LOOP
620 X=INT(RND(0)*ACROSS)*(W+1)
630 Y=INT(RND(0)*(ACROSS-1))*(D+6)
635 LOCATE X+1+(OFF*2),Y+1,BYTE:IF BYT
E>0 THEN SCORE(BYTE)=SCORE(BYTE)-1
640 ADDR=SCREEN+X/2+Y*40+OFF
645 COL=INT(RND(0)*COLS+1):COLOR COL
650 A=USR(ADR(BOX$),ADDR,W,D):IF COL>0
 THEN SCORE(COL)=SCORE(COL)+1
660 FOR I=1 TO ((10-SPEED))^2 STEP 10:
REM DELAY LOOP
661 TIME=INT(FINAL-(PEEK(20)+PEEK(19)*
256)/50):IF TIME/10<>INT(TIME/10) THEN
 OK=1
662 IF TIME/10=INT(TIME/10) AND OK=1 T
HEN CURR=CURR+SCORE(0):OK=0:REM TIME R
ELATED SCORE REDUCTION
663 IF CURR<0 THEN CURR=0
664 ? CHR$(28);"  TIME LEFT: ";TIME,"
  SCORE: ";CURR;"  "
665 IF TIME<1 OR PEEK(764)=28 THEN POP
 :GOTO 50
666 IF STICK(0)=15 THEN POP :GOTO 690
670 NEXT I
680 GOTO 620
690 GOSUB 100:LOCATE H,V,BYTE:CURR=CUR
R+SCORE(BYTE):IF BYTE>0 THEN GOSUB 500
0
700 IF BYTE=0 THEN GOSUB 6000
710 GOTO 620
1000 REM SET UP M/CODE DRAWBOX ROUTINE
1010 RESTORE 1100:BYTE=1
1020 READ DAT:IF DAT<0 THEN RETURN
1030 BOX$(BYTE,BYTE)=CHR$(DAT):BYTE=BY
TE+1:GOTO 1020
1100 DATA 104,201,3,240,9,168,240,5,10
4,104,136,208,251,96,104,133,209,104,1
33,208
1110 DATA 104,104,74,133,203,104,104,1
70,164,203,136,165,200,10,10,10,10,5,2
00,145
1120 DATA 208,136,16,251,24,165,208,10
5,40,133,208,165,209,105,0,133,209,202
,208,224,96,-1
2000 REM SET UP SCREEN PARAMETERS
2010 RESTORE 2020+ACROSS*10
2030 READ W,D,OFF
2040 RETURN
2050 DATA 25,74,1
2060 DATA 19,47,0
2070 DATA 15,34,0
2080 DATA 11,26,2
2090 DATA 9,20,3
3000 REM SET UP DLI FOR SPLIT SCREEN
3010 DL=PEEK(560)+PEEK(561)*256
3020 RESTORE 3100:FOR I=1776 TO 1786:R
EAD A:POKE I,A:NEXT I
3030 POKE 512,240:POKE 513,6
3040 POKE 54286,192
3050 POKE DL+166,128+15
3060 RETURN
3100 DATA 72,169,0,141,10,212,141,27,2
08,104,64
4000 REM FUNCTION KEY BEEP SOUND
4010 FOR I=15 TO 0 STEP -2:SOUND 0,I*(
S+3),10,I:NEXT I:SOUND 0,0,0,0:RETURN
5000 REM EXPLODE & SOUND
5001 X=INT((H-OFF*2)/(W+1))*(W+1)
5002 Y=INT(V/(D+6))*(D+6):LOCATE X+OFF
*2,Y,CH:IF CH<>BYTE THEN GRAPHICS 0:?
"LIGHT RUN/TV ADJUSTMENT ERROR":END
5003 ADDR=SCREEN+X/2+Y*40+OFF
5004 FOR Z=1 TO 3:COLOR 0:A=USR(ADR(BO
X$),ADDR,W,D):COLOR 5:A=USR(ADR(BOX$),
ADDR,W,D):NEXT Z
5005 COLOR 0:A=USR(ADR(BOX$),ADDR,W,D)
:SCORE(BYTE)=SCORE(BYTE)-1
5010 FOR I=0 TO 15 STEP 0.7:SOUND 0,I*
(S+3),4,15-I:NEXT I:SOUND 0,0,0,0:RETU
RN
6000 REM "NO SCORE" SOUND
6010 FOR I=1 TO 15 STEP 2:SOUND 0,240+
I,10,15-I:SOUND 1,239+I,10,15-I:NEXT I
6020 SOUND 0,0,0,0:SOUND 1,0,0,0:RETUR
N
```

## Get it right!

| | | | | | |
|---|---|---|---|---|---|
| 10 CP1 (Y) | 180 9YJ (W) | 310 LUD (Q) | 610 CYX (M) | 1000 CXN (H) | 3030 K6W (V) |
| 11 CT1 (O) | 190 SA5 (J) | 311 QG9 (5) | 620 RYP (S) | 1010 FY9 (Y) | 3040 16C (A) |
| 12 CX1 (X) | 200 CUT (V) | 320 MJP (6) | 630 S3J (Y) | 1020 68Y (E) | 3050 4SX (L) |
| 20 HLU (N) | 201 EMF (T) | 330 PGN (6) | 635 8ML (6) | 1030 5NE (D) | 3060 VPM (N) |
| 30 ROL (H) | 205 XCY (Q) | 340 1RW (Q) | 640 VMH (S) | 1100 WTL (W) | 3100 5UJ (K) |
| 40 523 (P) | 210 1NP (C) | 400 CUV (V) | 645 8J4 (E) | 1110 XH7 (N) | 4000 CXR (J) |
| 50 CP5 (E) | 220 5AQ (C) | 410 A3M (W) | 650 OVG (T) | 1120 CLS (T) | 4010 HVD (U) |
| 60 RX8 (M) | 230 2HF (D) | 420 PN3 (U) | 660 34V (E) | 2000 CXP (Y) | 5000 CXS (S) |
| 70 NKN (P) | 240 J4L (2) | 500 WY7 (5) | 661 JQU (X) | 2010 NQ8 (L) | 5001 K81 (R) |
| 100 CUS (R) | 245 7CC (H) | 510 TGK (U) | 662 5SQ (F) | 2030 S2A (2) | 5002 T1E (F) |
| 101 J35 (L) | 250 9T2 (2) | 520 9ST (K) | 663 H38 (1) | 2040 VKL (5) | 5003 V32 (6) |
| 110 4UT (3) | 251 T54 (G) | 530 F2V (7) | 664 GVO (P) | 2050 PLH (H) | 5004 GLV (W) |
| 111 5TG (Y) | 255 LOP (V) | 540 F6Q (X) | 665 O2U (5) | 2060 PQ3 (J) | 5005 WS8 (S) |
| 112 3PG (1) | 260 7E7 (M) | 550 QOP (8) | 666 7CT (P) | 2070 PMG (5) | 5010 ENJ (L) |
| 130 FSO (7) | 261 MN6 (L) | 560 8G3 (Y) | 670 PC6 (H) | 2080 PKJ (H) | 6000 CXT (K) |
| 140 3U6 (X) | 265 AHX (O) | 570 14F (A) | 680 RND (2) | 2090 PYN (J) | 6010 FPW (J) |
| 150 HSW (G) | 270 5LS (V) | 580 PG5 (8) | 690 W3R (E) | 3000 CXQ (N) | 6020 7LR (4) |
| 160 H8C (E) | 280 9SR (K) | 590 PQ5 (C) | 700 TNS (1) | 3010 PPX (J) | |
| 170 67K (2) | 290 JVY (U) | 600 6AE (W) | 710 QSE (P) | 3020 G4S (C) | |

# Fancy a little sound advice?

## LEN GOLDING journeys further into the wonderful world of Atari Basic

**No game is complete without the occasional explosion, laser blast or musical theme, and even business software benefits from the odd discreet bleep or two. This month we'll show you how to produce sounds of all kinds, starting with simple musical notes, progressing through chords, phaser blasts, machine gun sounds, explosions and rounding things off with a singing joystick. The new commands we will cover are: SOUND, GOTO and FOR..NEXT.**

First let's look at the SOUND command. It's quite a complex one, since it needs four numbers tagged on to keep the syntax correct. Here's a simple example:

```
SOUND 0,121,10,8
```

If you type this and press Return you will hear a musical note close to middle C. The sound continues, even though the READY message appears on screen. You can turn it off by typing:

```
SOUND 0,0,0,0
```

The obvious question to be asked at this point is: What do the four numbers mean? Well, the first specifies one of four different sound generators or voices, the second is pitch, the third is tonal quality and the last is the volume level.

Let's look at them in order. Unlike humans, your Atari has four separate voices, which it can use independently or all at the same time. Each voice has its own identifying number: 0, 1, 2 or 3, and in the examples above we've specified voice number 0. It's a bit confusing to think of 0, not 1, as the first number in a series, but that's the way computers like to do it.

Try changing the first number after the SOUND command to 1, 2 or 3 and see what happens. You probably won't hear any difference, because the computer is still singing middle C, and it sounds the same no matter which voice is producing it. So why bother having more than one voice? You'll see when we start generating more complex sounds, such as explosions and musical chords.

The second number controls the note's pitch – the higher the number, the lower the pitch. Your Atari can produce musical notes which range from one octave below middle C to two octaves above it. Here's a short utility program using some of the things we learned last month:

```
10 PRINT "GIVE ME A NUMBER FROM 0 TO 255"
20 INPUT P
30 SOUND 0,P,10,8
40 GOTO 10
```

When you Run this program, line 10 prints the message asking for a number from 0 to 255. Type the number, then press Return: Your computer takes the number you've typed, and calls it *P*. Then it moves on to line 30, where it sees that *P* is the pitch value, so it inserts your number just as though you'd typed it directly into the program line.

Line 40 contains a new command – GOTO – which works exactly as you might expect, sending the computer back to line 10 so that the whole process is repeated. This kind of circular movement is called a *loop*, and we'll be saying a lot more about loops of various kinds throughout the series.

The third number after a SOUND command regulates the sound's tonal quality, and it can be any even number from 0 to 14. Numbers 10 and 14 will give you pure musical tones, while 0,2,4,6,8 and 12 produce pulsing,

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hissing or crashing noises which can be used for special effects. Odd numbers will either turn the sound off or produce an annoying little click, so avoid them if you can.

The fourth and final number controls volume, and can be any number from 0 to 15. The higher the number, the louder the sound – 15 is about twice as loud as 8, and 0 turns it off completely.

That's voice. pitch, tone and volume dealt with, but there's one more factor that we need to control – duration. In some versions of Basic the SOUND command has a fifth number which controls how long the sound stays on, but unfortunately that's not the case with standard Atari Basic. Once our sound is switched on, it will stay that way until you switch it off, or until the program comes to an end.

Incidentally, that's why we didn't use a line number in our first example. If we had done so, the line would have become a program, instead of a throw-away command, and the computer would have switched off the sound before you could recognise it as a musical note. Try it and see.

To control a sound's duration, we need a separate command to handle the timing. The most common method is to use one or more FOR...NEXT loops. These are quite tricky to understand, but they crop up in all kinds of situations, so it's worth the effort to master them. Here's a simple example:

```
10 FOR W=1 TO 500
20 NEXT W
```

In ordinary English, these two lines mean something like this: Take a variable called *W* and set its value to 1. Now increase its value by one, and continue doing this until the value reaches 500.

Because the computer can process only one Basic instruction at a time, a FOR-NEXT command like this will hold its full attention until the loop has counted itself out. The result, from a user's standpoint, looks like a pause with nothing much happening. Here's an example:

```
10 INPUT P
20 SOUND 0,P,10,8
30 FOR W=1 TO 200
40 NEXT W
```

You will find that lines 30 and 40 hold the sound on for about half a second, giving the effect of a short bleep, before the computer turns it off at the program's end. To get a longer bleep, change the 200 to a larger number; for a shorter bleep make it smaller.

FOR...NEXT loops can do other things with sound, as well as defining its duration. For example:

```
10 FOR P=0 TO 255
20 SOUND 0,P,10,8
30 NEXT P
```

This gives you a tone which falls in pitch from high to low. Can you see how it works? The loop is executed 255 times, with the value of *P* increasing by one each time. Since *P* controls the sound's pitch – the higher its value the lower the pitch – you get a rapidly falling note. You can do the same thing with volume:

```
10 FOR V=0 TO 15
20 SOUND 0,121,10,V
30 NEXT V
```

Here you get a tone which starts quietly, but gets rapidly louder as the value of **V** increases. FOR-NEXT loops need not always count upwards in increments of one. There is a related command – STEP – which gives you a great deal more flexibility. For example:

```
10 FOR P=0 TO 250 STEP 10
20 SOUND, 0,P,10,8
30 NEXT P
```

This program counts to 250 in tens, so instead of a smoothly falling pitch you get a more jerky series of separate notes. However, because each note lasts only a fraction of a second, you don't hear them as separate tones. Instead, the result sounds like some kind of futuristic hand-weapon – let's call it a phaser. You can even use the STEP command to count backwards:

```
10 FOR P=255 TO 0 STEP -1
20 SOUND 0,P,10,8
30 NEXT P
```

In this case the count starts at 255 and reduces by one every time the loop is executed, until it reaches zero. The result is a smoothly rising pitch. Try changing line 10 to:

```
10 FOR P=250 TO 0 STEP -10
```

What would you expect to happen? Atari Basic allows you to put one FOR..NEXT loop inside another. This is called *nesting*, and lets you produce all kinds of special effects. Here's a

Turn to Page 24 ▶

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| | | | | | | |
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◀ From Page 22

simple example, based on the *phaser* program:

```
10 FOR P=0 TO 250 STEP 10
20 SOUND 0,P,10,8
30 FOR W=1 TO 50
40 NEXT W
50 NEXT P
```

This time, instead of the phaser sound, you get a series of musical notes. Lines 30 and 40 hold the sound at each step long enough for you to hear it as a separate musical tone.

The important thing to remember about nested FOR-NEXT loops is that they have to be *un-nested* in reverse order – the one which starts first must be terminated last, and so on. In the previous program we introduced the loop containing *P* before the one containing *W*, so to make them unwind correctly we have to insert NEXT W before NEXT P (lines 40 and 50).

Well, that's the difficult bit over for this month – now let's have a bit of fun. Program I shows how you can use all four voices at once, each producing a different note, to make a musical chord.

Programs II and III produce sounds for zapping aliens, while the automatic rifle of Program IV would suit shoot-'em-ups of a more terrestrial kind and Program V is an explosion. You could use it for hand-grenades or set it at the end of a falling-pitch sound to represent a bomb dropped from an aircraft.

If you're into detective adventure games or police-style chases, the sounds in programs VI and VII could add an extra dimension of reality. Program VI is a ringing telephone, while Program VII produces the two-tone siren familiar to British ears.

In all these examples, look at how the FOR..NEXT loops are used to vary pitch and volume, or just to hold the sound on for a predetermined time, and experiment to see if you can improve the effects.

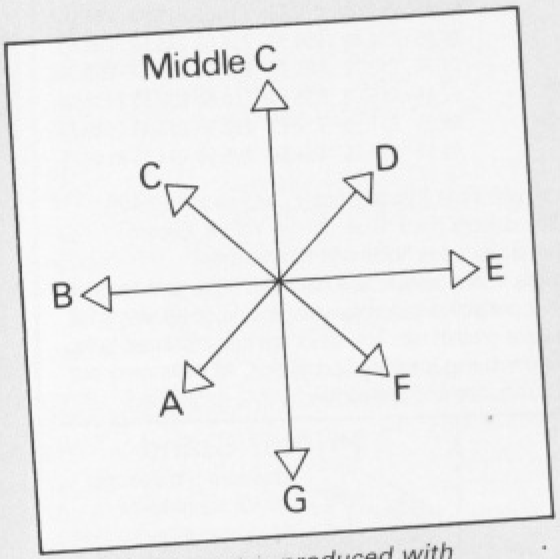



*Figure I: The notes produced with the joystick in various positions*

Program VIII is a musical joystick, and uses some commands which we'll be covering in detail later in the series. Line 20 reads the value returned by your joystick, which must be plugged into port one. Line 30 switches everything off if the stick is centralised. Lines 40 to 110 determine the pitch value, depending on the stick's position, and line 120 generates the sound. The GOTO command at line 130 starts the whole process off again.

The net result is a joystick which can play the scale of C – the positions for each note are shown in Figure I. It won't take the Albert Hall by storm, but you can use it for nursery rhymes, childrens' hymns and other simple tunes.

We'll be returning to sound generation at a more advanced level later, but next month it's time to introduce graphics, and show how you can produce simple movement effects on screen.

```
10 REM Four-note musical chord
20 SOUND 0,121,10,8
30 SOUND 1,96,10,8
40 SOUND 2,81,10,8
50 SOUND 3,60,10,8
60 GOTO 60
```

*Program I: Simple musical chord*

```
10 REM Phaser
20 FOR A=10 TO 0 STEP -1
30 FOR B=0 TO 100 STEP 10
40 SOUND 0,B,10,A
50 NEXT B
60 NEXT A
```

*Program II: Space age gun*

```
10 REM Alternative phaser
20 FOR A=12 TO 0 STEP -1
30 FOR B=50 TO 150 STEP 10
40 SOUND 0,B,10,A
50 NEXT B
60 NEXT A
```

*Program III: Alternative phaser*

```
10 REM Machine gun
20 FOR REPEAT=1 TO 15
30 FOR V=14 TO 0 STEP -2
40 SOUND 0,4,0,V
50 SOUND 1,100,8,V
60 NEXT V
70 NEXT REPEAT
```

*Program IV: Machine gun*

```
10 REM Explosion
20 FOR V=14 TO 4 STEP -1
30 FOR W=1 TO 100
40 NEXT W
50 SOUND 0,200,8,V
60 SOUND 1,100,8,V
70 SOUND 2,255,8,V
80 NEXT V
90 FOR V=4 TO 0 STEP -1
100 FOR W=1 TO 200
110 NEXT W
120 SOUND 0,300,4,V
130 SOUND 1,100,4,V
140 SOUND 2,255,4,V
150 NEXT V
```

*Program V: Explosion*

Turn to Page 26 ▶

◀ From Page 24

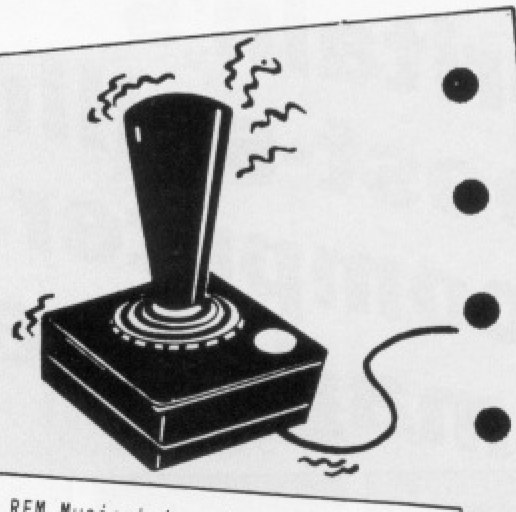


```
10 REM Modern ringing telephone
20 FOR REPEAT=1 TO 6
30 FOR RING=1 TO 2
40 FOR BLEEP=1 TO 10
50 SOUND 0,50,14,8
60 FOR W=1 TO 10
70 NEXT W
80 SOUND 0,0,0,0
90 NEXT BLEEP
100 FOR W=1 TO 90
110 NEXT W
120 NEXT RING
130 SOUND 0,0,0,0
140 FOR W=1 TO 400
150 NEXT W
160 NEXT REPEAT
```

*Program VI: Ringing telephone*

```
10 REM British siren
20 FOR REPEAT=1 TO 6
30 SOUND 0,60,10,8
40 FOR W=1 TO 200
50 NEXT W
60 SOUND 0,72,10,8
70 FOR W=1 TO 200
80 NEXT W
90 NEXT REPEAT
```

*Program VII: British siren*



```
10 REM Musical joystick
20 S=STICK(0)
30 IF S=15 THEN SOUND 0,0,0,0:GOTO 20
40 IF S=14 THEN P=121
50 IF S=6 THEN P=108
60 IF S=7 THEN P=96
70 IF S=5 THEN P=91
80 IF S=13 THEN P=81
90 IF S=9 THEN P=72
100 IF S=11 THEN P=64
110 IF S=10 THEN P=60
120 SOUND 0,P,10,8
130 GOTO 20
```

*Program VIII: Musical joystick*

# Those special characters

WE often have enquiries about how to produce the "special" characters which sometimes appear in our listings. It's because of this uncertainty that we prefer authors not to use such characters.

However, we recognise that sometimes it's the simplest way and occasionally it's the only way of doing something. For this reason we're repeating the two tables below. These show how to produce the special characters from the keyboard and were first printed in the December 1985 issue of *Atari User*.

We've drawn a box around the characters so that you can see their position more clearly. These boxes won't appear either on-screen or in the listings we print.

The Control and Shift keys are used by holding them down while you press another key. For example, if you read CTRL A, you hold down the CTRL(CONTROL on XL machines) key and press A.

The ESC key is like a normal key, simply press it. For example, if you read ESC DELETE, you press and release the ESC key and then press and release the DELETE key.

The Reverse Video Mode key has been abbreviated to REV. On early machines this key bore the Atari logo while on XL machines it has a design on it. If this key is pressed and released once, all subsequent input will appear in reverse (or inverse) on the screen. You turn Reverse Video Mode off by pressing the key again.

For example, if you read REV CTRL P the sequence of operations would be:

1. *Press and release the REV key to turn on Reverse Video Mode.*
2. *Hold down the CTRL key and press and release the P key.*
3. *Release the CTRL key.*
4. *Press and release the REV key to turn off Reverse Video Mode.*

It's easy to make mistakes with the special characters, which is why we prefer not to use them. If you do use them, take extra care.

## NORMAL VIDEO

| FOR THIS | TYPE THIS | FOR THIS | TYPE THIS |
|---|---|---|---|
| | CTRL , | | CTRL S |
| | CTRL A | | CTRL T |
| | CTRL B | | CTRL U |
| | CTRL C | | CTRL V |
| | CTRL D | | CTRL W |
| | CTRL E | | CTRL X |
| | CTRL F | | CTRL Y |
| | CTRL G | | CTRL Z |
| | CTRL H | | ESC ESC |
| | CTRL I | | ESC CTRL - |
| | CTRL J | | ESC CTRL = |
| | CTRL K | | ESC CTRL + |
| | CTRL L | | ESC CTRL * |
| | CTRL M | | CTRL . |
| | CTRL N | | CTRL ; |
| | CTRL O | \| | SHIFT = |
| | CTRL P | | ESC SHIFT CLEAR |
| | CTRL Q | | ESC DELETE |
| | CTRL R | | ESC TAB |

## REVERSE VIDEO

| FOR THIS | TYPE THIS | FOR THIS | TYPE THIS |
|---|---|---|---|
| | REV CTRL , | | REV CTRL S |
| | REV CTRL A | | REV CTRL T |
| | REV CTRL B | | REV CTRL U |
| | REV CTRL C | | REV CTRL V |
| | REV CTRL D | | REV CTRL W |
| | REV CTRL E | | REV CTRL X |
| | REV CTRL F | | REV CTRL Y |
| | REV CTRL G | | REV CTRL Z |
| | REV CTRL H | | ESC SHIFT DELETE |
| | REV CTRL I | | ESC SHIFT INSERT |
| | REV CTRL J | | ESC CTRL TAB |
| | REV CTRL K | | ESC SHIFT TAB |
| | REV CTRL L | | REV CTRL . |
| | REV CTRL M | | REV CTRL ; |
| | REV CTRL N | | REV SHIFT = |
| | REV CTRL O | | ESC CTRL 2 |
| | REV CTRL P | | ESC CTRL DELETE |
| | REV CTRL Q | | ESC CTRL INSERT |
| | REV CTRL R | | |

# AIR YOUR VIEWS

## – and you could win in Red Rat's prize draw




What do you like best in *Atari User*? What would you see changed? This is your opportunity to let us know what you think.

Simply fill in the questionnaire we have devised – to provide us with more information that will help us make your favourite magazine even better.

If you also complete the name and address panel below you will be included in the Prize Draw – with a hundred superb Red Rat titles to be given away. These include:

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★ **Escape from Doomworld and River Rally:** Two games offered together as one prize. In Doomworld your mission is to save a team of scientists from a planet under attack. While you can indulge in watery fun in River Rally.

Name______________________________

Address______________________________

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Postcode______________________________

*To enter the Draw, please return your survey form by February 29.*

**Please tick your reply in the boxes provided. You don't have to fill in an answer if you don't want to. You may photocopy these pages to protect your magazine if you wish.**

## ABOUT YOU

How old are you?

| | |
|---|---|
| Under 11 ☐ | 23 - 30 ☐ |
| 11 - 15 ☐ | 31 - 39 ☐ |
| 16 - 18 ☐ | 40 - 50 ☐ |
| 19 - 22 ☐ | Over 51 ☐ |

Sex? M / F     Occupation?____________________

What area of computers or computing interest you?

| | Very much | A little | Not at all |
|---|---|---|---|
| Business | ☐ | ☐ | ☐ |
| Arcade Games | ☐ | ☐ | ☐ |
| Adventures | ☐ | ☐ | ☐ |
| Comms | ☐ | ☐ | ☐ |
| Programming | ☐ | ☐ | ☐ |
| Hardware | ☐ | ☐ | ☐ |
| Future Tech | ☐ | ☐ | ☐ |
| Learning about: | | | |
| Programming | ☐ | ☐ | ☐ |
| Hardware | ☐ | ☐ | ☐ |

How do you rate your knowledge of:

| | None | Poor | Average | Good | Excellent |
|---|---|---|---|---|---|
| Basic programming | ☐ | ☐ | ☐ | ☐ | ☐ |
| Machine code | ☐ | ☐ | ☐ | ☐ | ☐ |
| Hardware | ☐ | ☐ | ☐ | ☐ | ☐ |

## ABOUT YOUR MICRO

What micro(s) do you own or use?

| | |
|---|---|
| ☐ 400 | ☐ 800 |
| ☐ 600XL | ☐ 800XL |
| ☐ 130XE | ☐ 65XE |

How long have you had your Atari?

| | |
|---|---|
| ☐ Under 1 year | ☐ 1-2 years |
| ☐ 2-3 years | ☐ 3+ years |

Do you have any other computer? Yes/No

Which one(s)?______________________________

Are you thinking of buying another computer? Yes/No
Which one?______

What other hardware do you have?

- ☐ Monitor ☐ Colour ☐ Monochrome
- ☐ Disc drive ☐ 1050 ☐ XF–551 ☐ 810
- ☐ Printer
- ☐ Modem

Please list any others:______

What type of hardware would you like next for your micro?______

Please indicate which of the following types of software you have:

- ☐ Word processor ☐ Spreadsheet
- ☐ Database ☐ Other languages
- ☐ Assembler ☐ Basic utilities
- ☐ Disc utilities

What type of software are you most likely to buy next for your micro?______

What do you use your Atari micro for (fill in your own ideas in the spaces at the end of the list)?

| | Only | Mostly | Some | Not much | Never |
|---|---|---|---|---|---|
| Arcade games | ☐ | ☐ | ☐ | ☐ | ☐ |
| Adventure games | ☐ | ☐ | ☐ | ☐ | ☐ |
| Programming | ☐ | ☐ | ☐ | ☐ | ☐ |
| Business | ☐ | ☐ | ☐ | ☐ | ☐ |
| Own letters | ☐ | ☐ | ☐ | ☐ | ☐ |
| Home accounts | ☐ | ☐ | ☐ | ☐ | ☐ |
| .............................. | ☐ | ☐ | ☐ | ☐ | ☐ |
| .............................. | ☐ | ☐ | ☐ | ☐ | ☐ |
| .............................. | ☐ | ☐ | ☐ | ☐ | ☐ |
| .............................. | ☐ | ☐ | ☐ | ☐ | ☐ |

What software do you use most frequently?______

Is there any software (apart from games) you've bought that you never use?______

## THE MAGAZINE

How long have you been reading *Atari User*?

☐ 0-3 months ☐ 4-6 months ☐ 7-12 months
☐ 1-2 years ☐ 2-3 years ☐ from issue 1

How often do you buy *Atari User*?

☐ Every issue ☐ 1 in 2
☐ Less regularly

How do you get *Atari User*?

☐ Subscription ☐ Newsagent
☐ Computer dealer ☐ A friend

How many other people read your copy of *Atari User*?

☐ None ☐ 1 ☐ 2 ☐ 3 ☐ more than 3

What other computer magazines do you regularly buy?______

What do you like most about *Atari User*?______

What do you like least about *Atari User*?______

Which program listings do you type in?

| | Usually | Sometimes | Never |
|---|---|---|---|
| Games | ☐ | ☐ | ☐ |
| Utilities | ☐ | ☐ | ☐ |
| Tutorials | ☐ | ☐ | ☐ |
| Educational | ☐ | ☐ | ☐ |

What is the maximum length of listing you would want to type in?

☐ Half page ☐ 1 page ☐ 2 pages
☐ 3 pages ☐ 4 pages ☐ 5 pages

Please circle the number which matches your level of interest in the following subjects (0 lowest — 9 highest):

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| News | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Software reviews | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Hardware reviews | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Gadgets | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Communications | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Software solutions | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Five liners | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Rouloc | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Hints and Tips | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Mailbag | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Education | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Business | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Spreadsheets | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Games programs | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Utilities programs | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Easy programming | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Maps | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Indicate any articles or series you would like to see in future editions of *Atari User*.______

Any other comments you would like to make about *Atari User*.______

## THE SHOWS

Did you attend any Atari shows in 1987? Yes ☐ No ☐

If you attended any, which?______

Please circle the number that matches what would attract you to come to a show in 1988 (0 least – 5 most)?

| | | | | | | |
|---|---|---|---|---|---|---|
| New products | 0 | 1 | 2 | 3 | 4 | 5 |
| Bargain offers | 0 | 1 | 2 | 3 | 4 | 5 |
| Technical advice | 0 | 1 | 2 | 3 | 4 | 5 |
| Hands on testing | 0 | 1 | 2 | 3 | 4 | 5 |
| Show themes/theatre | 0 | 1 | 2 | 3 | 4 | 5 |

Anything else not mentioned here?______

*Thank you for filling in this survey. Now send it to:* **Reader Survey, Atari User, Europa House, Adlington Park, Macclesfield SK10 5NP.**

# 5 LINERS

## LOGIC PUZZLE
### from Robin Edwards

THIS short program is designed to confuse and befuddle you. When it is first run you are prompted to enter a difficulty level from 1 to 50 – 1 being easy and 50 very hard. Enter your choice and then press Return.

After this the screen will clear and a 10x10 box of hearts will appear with various sections inverted. Your task is to return the whole box to the normal – not inverse – state.

You use the joystick to move the cursor around the grid and when the fire button is pressed the square that the cursor is above and the eight adjacent squares will be flipped over. It is a little tricky to get the grid back to normal – but persevere as it's fun trying.

```
10 ? "KSKILL LEVEL(1-50):";:INPUT S:PO
KE 82,0:GRAPHICS 0:POKE 752,1:POSITION
 14,4:? "LOGIC PUZZLE":POSITION 0,0
20 FOR T=0 TO 9:? "♥♥♥♥♥♥♥♥♥♥":NEXT T:
FOR Z=0 TO S+4:X=RND(0)*7+1:Y=RND(0)*7
+1:GOSUB 50:NEXT Z:X=1:Y=1:ST=1
30 LOCATE X,Y,C:POSITION X,Y:? "■":FOR
 T=0 TO 40:NEXT T:POSITION X,Y:? CHR$(
C):S=STICK(0):IF ST=0 THEN GOSUB 50
40 X=X+(S=7 AND X<8)-(S=11 AND X>1):Y=
Y+(S=13 AND Y<8)-(S=14 AND Y>1):ST=STR
IG(0):GOTO 30
50 FOR T=X-1 TO X+1:FOR U=Y-1 TO Y+1:L
OCATE T,U,C:POSITION T,U:? CHR$( NOT (
C)*128):NEXT U:NEXT T:RETURN
```

**Get it right!**

```
10 K8S (6)
20 SDD (T)
30 4RD (6)
40 4FN (H)
50 H6S (R)
```

## DESCENT
### from Andy McAtear

HERE'S a game where you take the role of a chopper pilot who has to fly as far as he can into a mysterious cave. Movement is controlled by a joystick plugged into port one – but you can only move from left to right.

If you press the fire button you will cause the helicopter to descend at a faster speed – but be careful as this is very dangerous. As you get deeper your score increases and is displayed at the end of the game. You only have one life, so take care not to crash.

**PROGRAM BREAKDOWN**

1 Sets up the screen and positions the chopper and the cave. Sets the score to zero and prints the start of the cave. It also sets a TRAP which is needed later.

2 Prints the path of the cave and generates a noise if the fire button is pressed. Also gets the STICK value.

3 Determines the direction of the cave.

4 Sets the speed of the chopper by poking location 622 with a value obtained from the fire button which, when multiplied by 255, gives either 0 for fast scroll or 255 for slow. It also checks the chopper location to see if it has crashed and, if not finds the new location, prints it and branches back to line 2.

5 End of game. The sound channel is set to zero and the score is displayed. Waits for Return to be pressed to start the game again.

**VARIABLES**

- **S** Score
- **C** Chopper position
- **P** Path of cave
- **T** Random path of cave
- **V** Value obtained from joystick
- **G,H** Values obtained from the LOCATE command
- **D$** Dummy string to force error to enable TRAP statement to be executed
- **N** Value obtained from fire button

```
1 TRAP 1:GRAPHICS 0:POKE 752,1:POKE 71
0,1:S=0:C=17:P=15:POSITION 0,22:? "***
*************     *******************"
2 T=P:POSITION P,23:? "*          *":N=2-ST
RIG(0):SOUND 0,(3-N)*32,2,4:S=S+N:J=ST
ICK(0):V=INT(J/4.5):IF V>1 THEN V=V-3
3 P=(T-1)+INT(3*RND(0)):IF P<0 OR P>32
 THEN 3
4 POKE 622,STRIG(0)*255:LOCATE C,0,G:L
OCATE C+2,0,H:C=C+V:POSITION C,0:? ">v
<":IF G<>42 AND H<>42 THEN 2
5 SOUND 0,0,0,0:GRAPHICS 2:POKE 710,1:
POKE 82,12:POSITION 5,6:? #6;"SCORE-";
S:? :? "PRESS [RETURN]":INPUT D$
```

**Get it right!**

```
1 RY3 (7)
2 61A (T)
3 P8W (W)
4 WRL (C)
5 3VC (D)
```



## MASTERMIND
### from Paul Soames

THIS program is a version of the classic board game, but instead of using coloured pegs it uses numbers from 0 to 9.

The computer will pick five random numbers for a secret code and give you 10 attempts to guess it. Enter numbers at the asterisk by just pressing the appropriate key. When you have entered the numbers for one guess, the computer will show you which, if any, of your numbers are in the correct positions.

It does this by showing a line of five pegs on the right of your guess. A filled in one means a correct number in that position and unfilled means an incorrect number. If you guess the code in the set number of goes, it will be shown for your confirmation. If not it is shown with a rasp and, either way, the program will automatically run again.

As the program stands it should always be possible, with logical thinking, to guess the code in the 10 guesses allowed. The permitted number of guesses can be changed by altering the variable *T* in line 20, to any number you want.

**PROGRAM BREAKDOWN**

**10** Dimensions variables, picks the secret code and opens the keyboard for the GET command. The first quotes contain a clear screen character.

**20** Sets the number of tries allowed, gets the five digits of your guess and increments the number of tries counter.

**30** Uses a Boolean statement to set the elements of *A$* to equal an o for an incorrect answer and a Control+T for a correct one.

**40** Prints the number of tries so far, checks to see if you have every digit correct or if you have no more tries left. If the guess is incorrect it goes back to line 20 for another try.

**50** Uses a Boolean statement to either play some notes for a correct answer or play a rasp. It waits a while before running the program again.

```
10 ? "K":POKE 710,0:DIM N(5),G(5),A$(5
):FOR F=1 TO 5:N(F)=INT(RND(1)*10):POS
ITION F*3+9,0:? "@";:NEXT F:OPEN #1,4,
0,"K:"
20 T=10:POKE 752,1:G=G+1:FOR F=1 TO 5:
POSITION F*3+9,G+3:? "*";:GET #1,K:? "
←";CHR$(K):G(F)=K-48:NEXT F
30 FOR F=1 TO 5:A=(N(F)=G(F))*20+(N(F)
<>G(F))*111:A$(F,F)=CHR$(A):NEXT F:POS
ITION 32,G+3:? A$;
40 POSITION 0,21:? "TRIES SO FAR : ";G
:ON A$<>"●●●●●" AND G<>T GOTO 20:FOR F
=1 TO 5:POSITION F*3+9,0:? CHR$(176+N(
F))
50 SOUND 0,255-((A$="●●●●●")*40*F),14,
8:FOR H=1 TO 80:NEXT H:NEXT F:SOUND 0,
0,0,0:FOR F=1 TO 2000:NEXT F:RUN
```

**Get it right!**

```
10 V7R (H)
20 994 (1)
30 5MJ (O)
40 8WF (8)
50 OVH (G)
```

## ALARM
### from Granville Danby

HOW many times have you been programming and your mother or wife has told you that your dinner will be ready in half an hour? But you just keep typing away and end up getting a telling off.

Well, now you have a solution to that problem with this simple program. When you first run it you must enter the number of minutes before you want the alarm to go off.

The program works in the vertical blank period, so once it is installed you can be performing other functions such as entering a Basic program or playing certain games – providing they are written in Basic and don't use the VBI. It works by converting the minutes into *Jiffies* – the time units for the internal clock.

A small piece of machine code is then initialised to set up a vertical blank interrupt. The alarm is then activated and the only way to turn it off is to press Reset or switch the computer off.

Because the program uses the internal clock and page 6, any program that also uses these cannot be run while the alarm is working. It is accurate to within five seconds whether you set it to one minute or one hour.

**PROGRAM BREAKDOWN**

**10** Gets the time in minutes and converts it into Jiffies

**20** Reads and pokes in the machine code data

**30** Resets the clock and pokes in the VBI location

**40 – 50** Data statements for the machine-code

```
10 INPUT TI:TI=TI*60:A=INT(TI/1310.72)
:B=TI-(A*1310.72):B=INT(B/5.12)
20 FOR X=0 TO 39:READ Y:POKE 1536+X,Y:
NEXT X:POKE 1553,A:POKE 1559,B
30 POKE 18,0:POKE 19,0:POKE 20,0:POKE
1664,PEEK(58484):POKE 1665,PEEK(58485)
:Q=USR(1536)
40 DATA 104,120,169,14,141,34,2,169,6,
141,35,2,88,96,165,18,201,5,208,17,165
,19,201,6;208,11,232,142,26
50 DATA 208,165,17,201,0,208,245,96,76
,226,192
```

**Get it right!**

```
10 37M (K)
20 6FY (A)
30 2VQ (K)
40 Y1W (O)
50 CFR (L)
```

# BREAKIN



by STEPHEN WILLIAMSON

**IF you are a compulsive games player you will probably remember a game called Breakout. It was probably one of the simplest games ever written – but very addictive. So, to bring back old memories, here is our version of that old classic – Breakin.**

The game controls are shown in Table I, and the idea is to keep a ball in play using a bat that moves across the bottom of the screen. At the top are high-scoring moving targets protected by a wall and, to reach them, you must make a hole by bouncing the ball against the wall to knock out the bricks. Points are awarded as shown in Table II.

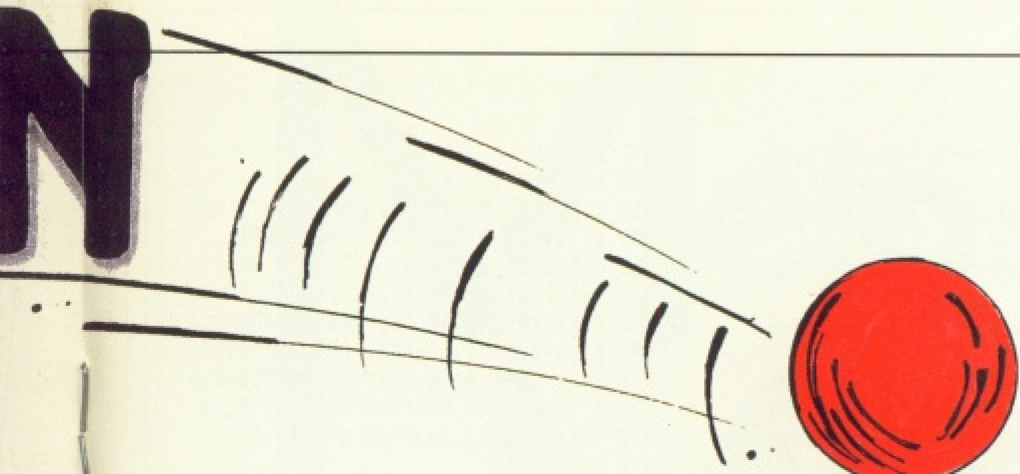
This may sound simple, but in the land of arcade games nothing is ever that easy. So to make things more difficult, pin-table type bumpers appear on the play area to deflect the ball. You need quick reactions and lots of concentration to predict where to place the bat to send the ball up the field of play again.

You start with five balls and one is lost if it travels past the bat. The game ends when all your balls have been used. There are 10 levels of play – shown in Table III – and these determine the speed of the ball and the number and way in which the bumpers are placed. The current level, together with the other information shown in Table IV, is displayed at the top of the screen.

Breakin is written mainly in Basic, but plays at high speed due to the use of two short machine code routines that handle all the movement of the bat, the ball and the targets – lines 720 to 830 and 950 to 1050.

If you want to change the number of

```
10 REM BREAKIN
20 REM BY STEPHEN WILLIAMSON
25 REM (c)ATARI USER
30 GRAPHICS 17:GOSUB 1380
40 SM=PEEK(88)+256*PEEK(89)
50 POKE 708,60:POKE 709,30:POKE 710,20
4:POKE 711,90
60 POSITION 0,0:? #6;"breakin..please
wait"
70 REM DRAW INITIAL BUMPERS
80 POKE SM+240+10,56:POKE SM+280+9,56:
POKE SM+280+11,56:POKE SM+320+10,56
90 FOR I=20 TO 39:POKE SM+I,58:NEXT I
100 FOR I=460 TO 479:POKE SM+I,63:NEXT
 I
110 GOSUB 1570
120 REM DRAW SIDES
130 FOR I=SM+20 TO SM+479 STEP 20:POKE
 I,58:POKE I+19,58:NEXT I
140 REM SET UP PM GRAPHICS AND INITIAL
ISE VARIABLES
150 POKE 559,62:PMB=144:POKE 54279,PMB
:PMBASE=PMB*256
160 POKE 704,14:POKE 53256,1:POKE 5327
7,3:POKE 705,156
170 SCORE=0:BCOUNT=0:MOFF=1782:POKE MO
FF,0:HIGH=0
180 DIRECT=1789:BALLV=1788:BALLH=1787:
XDELAY=1786:YDELAY=1782
190 POKE BALLV,200:POKE BALLH,124:POKE
 1790,120:POKE YDELAY,200
200 POKE DIRECT,3:BATH=1790
210 BALLON=0
220 BAT=PMBASE+1024:BALL=PMBASE+1280
230 FIELDCOLL=53253:PLAYCOLL=53261
240 FOR I=0 TO 255:POKE BAT+I,0:POKE B
ALL+I,0:POKE PMBASE+1536+I,0
250 POKE PMBASE+1792+I,0:NEXT I
260 POKE BAT+209,129
270 POKE BAT+210,255:POKE BAT+211,126:
POKE BAT+212,60
280 POKE BAT+213,60
290 RESTORE 300:FOR I=0 TO 11:READ A:P
OKE PMBASE+I,A:NEXT I
300 DATA 0,0,0,0,56,56,56,0,0,0,0
310 FOR I=0 TO 9:POKE PMBASE+11+I,24:P
OKE PMBASE+21+I,60
320 POKE PMBASE+31+I,126:POKE PMBASE+4
1+I,255:NEXT I
330 GOSUB 960:GOSUB 730:LEVEL=1:LIVES=
5
340 GOSUB 1650
350 REM MAIN LOOP
360 POKE 53278,0:SOUND 0,0,0,0:SOUND 1
,0,0,0:POKE MOFF,0
370 IF BALLON=0 THEN GOSUB 850
380 A=USR(1536):POKE MOFF,1:POKE 77,0
390 GOSUB 410:GOTO 360
400 REM COLLISION DETECTION
410 SOUND 0,PEEK(BALLV),10,14
420 PLAY=PEEK(PLAYCOLL):FIELD=PEEK(FIE
LDCOLL):D=PEEK(DIRECT):BH=PEEK(BALLH)
430 IF FIELD=1 AND PEEK(BALLV)<43 THEN
 POKE DIRECT,INT(RND(1)*3)+4:RETURN
440 IF FIELD=1 AND D=2 THEN POKE DIREC
T,3:POKE 53249,BH+3:POKE BALLH,BH+3:RE
TURN
450 IF FIELD=1 AND D=3 THEN POKE DIREC
T,2:POKE 53249,BH-3:POKE BALLH,BH-3:RE
TURN
460 IF FIELD=1 AND PEEK(BALLV)>204 THE
N BALLON=0:POKE 53249,0:RETURN
470 IF FIELD=8 THEN GOSUB 1070:RETURN
480 IF FIELD=4 THEN GOSUB 1260:RETURN
490 IF FIELD=2 THEN GOSUB 1320:RETURN
500 IF FIELD=1 AND D=1 AND BH>52 AND B
H<198 THEN POKE DIRECT,INT(RND(1)*2)+2
:RETURN
510 IF FIELD=1 AND D=4 AND BH>52 AND B
H<198 THEN POKE DIRECT,INT(RND(1)*2)+5
:RETURN
520 IF FIELD=1 AND D=4 AND BH<53 THEN
POKE DIRECT,6:POKE BALLH,BH+3:POKE 532
49,BH+3:RETURN
530 IF FIELD=1 AND D=4 AND BH>197 THEN
 POKE DIRECT,5:POKE BALLH,BH-3:POKE 53
249,BH-3:RETURN
540 IF FIELD=1 AND D=5 THEN POKE DIREC
T,6:POKE 53249,BH+3:POKE BALLH,BH+3:RE
TURN
550 IF FIELD=1 AND PEEK(DIRECT)=6 THEN
 POKE DIRECT,5:POKE 53249,BH-3:POKE BA
LLH,BH-3:RETURN
560 IF PLAY<>0 THEN GOSUB 600
570 RETURN
580 REM COLLISION WITH BAT
590 IF PLAY<>1 THEN 680
600 IF PLAY<>1 THEN 680
610 P=PEEK(BALLH)-PEEK(BATH)
```



| | |
|---|---|
| **Select** | Changes game level |
| **Start** | Starts game |
| **Fire** | Launches ball |
| **Joystick left** | Moves bat left |
| **Joystick right** | Moves bat right |

*Table I: Game controls*

| | |
|---|---|
| **Brick-row 1** | 10 points |
| **Brick-row 2** | 20 points |
| **Brick-row 3** | 30 points |
| **Moving target** | 100 points |
| **Removing all bricks** | 1000 points and an extra ball |

*Table II: Points score*

balls you start off with, alter *LIVES* in line 1660. The speed of the ball and the distribution of the bumpers can also easily be altered: In line 1750 to 1840 *XDELAY* determines the speed of the ball so to change it simply alter *n* in the statement:

```
POKE XDELAY,n
```

where n is the speed value of the ball. As the game stands a value of 15 is slow, 10 medium and 5 fast.

If you know how to plot characters to the screen display using the POKE command you should not find it difficult to alter the number or pattern of bumpers on any level. Lines 1910 to 2080 plot their positions and they are a redefined character X – internal character 56. *SM* is the beginning of screen ram.

*Table III: Levels of play*

| | | |
|---|---|---|
| **0** | Slow speed | 5 bumpers |
| **1** | Medium speed | 5 bumpers |
| **2** | Fast speed | 5 bumpers |
| **3** | Medium speed | 18 bumpers |
| **4** | Fast speed | 18 bumpers |
| **5** | Medium speed | Random bumpers |
| **6** | Fast speed | Random bumpers |
| **7** | Medium speed | High-density random bumpers |
| **8** | Fast speed | High-density random bumpers |
| **9** | Medium speed | Super-density random bumpers |

| | |
|---|---|
| **S** | Score |
| **H** | High Score |
| **L** | Level |
| **B** | Number of balls left |

*Table IV: Game status display*

```
620 IF PEEK(BALLV)>206 THEN RETURN
630 POKE DIRECT,1
640 IF P<3 THEN POKE DIRECT,2
650 IF P>5 THEN POKE DIRECT,3
660 RETURN
670 REM HIT TARGET
680 SCORE=SCORE+100
690 GOSUB 1130
700 POKE 705,0:FOR I=0 TO 20:SOUND 0,9
2,10,10:SOUND 2,91,10,10:NEXT I:SOUND
2,0,0,0:POKE 705,156
710 RETURN
720 REM TARGET/BAT VBI ROUTINE
730 RESTORE 750:FOR I=0 TO 168:READ A:
POKE 35000+I,A:NEXT I
740 A=USR(35000):RETURN
750 DATA 104,169,6,160,195,162,136,32,
92,228,96,238,247,6,173,247,6,201,8,20
8
760 DATA 5,169,1,141,247,6,201,1,208,2
,162,11,201,2,208,2,162,21,201,3
770 DATA 208,2,162,31,201,4,208,2,162,
41,201,5,208,2,162,31,201,6,208,2
780 DATA 162,21,201,7,208,2,162,11,160
,0,189,0,144,153,50,150,153,60,151,232
790 DATA 200,192,10,208,241,238,249,6,
173,249,6,141,2,208,206,248,6,173,248,
6
800 DATA 141,3,208,238,194,2,238,195,2
,173,120,2,173,246,6,201,1,240,3,76
810 DATA 95,228,173,120,2,201,11,208,3
,206,254,6,201,7,208,3,238,254,6,173
820 DATA 254,6,201,56,208,5,169,57,141
,254,6,201,184,208,5,169,183,141,254,6
830 DATA 173,254,6,141,0,208,76,95,228
840 REM LAUNCH BALL
850 L=PEEK(BALLV):FOR I=L TO L+11:POKE
 BALL+I,0:NEXT I
860 POKE MOFF,1
870 IF SFLAG=0 THEN LIVES=LIVES-1:GOSU
B 2100
880 IF LIVES=0 THEN GOSUB 2010:GOSUB 1
650:GOTO 360
890 SFLAG=0
900 IF STRIG(0)=1 THEN 900
910 POKE BALLH,PEEK(BATH)+4:POKE BALLV
,196:POKE 53249,PEEK(BATH)+4
920 POKE DIRECT,INT(RND(0)*3)+1
930 BALLON=1:POKE MOFF,0
940 RETURN
950 REM BALL/BAT MC ANIMATION ROUTINE
960 RESTORE 980:FOR I=0 TO 159:READ A:
POKE 1536+I,A:NEXT I
970 RETURN
980 DATA 104,169,0,141,30,208,173,120,
2,201,11,208,3,206,254,6,201,7,208,3,2
38,254,6,173,254
990 DATA 6,201,56,208,5,169,57,141,254
,6,201,184,208,5,169,183,141,254,6,173
1000 DATA 254,6,141,0,208,173,253,6,20
1,1,208,3,206,252,6,201,2,208,6,206
1010 DATA 252,6,206,251,6,201,3,208,6,
206,252,6,238,251,6,201,4,208,3,238
1020 DATA 252,6,201,5,208,6,238,252,6,
206,251,6,201,6,208,6,238,252,6,238
1030 DATA 251,6,174,252,6,160,0,185,0,
144,157,0,149,232,200,192,11,208,244,1
73
1040 DATA 251,6,141,1,208,172,246,6,17
4,250,6,202,208,253,136,208,247,173,5,
208
1050 DATA 201,0,208,10,173,13,208,201,
0,208,3,76,1,6,96
1060 REM BRICKHIT ROW1
1070 N=INT((PEEK(BALLH)-55)/7.8)
1080 F=PEEK(SM+141+N):F1=PEEK(SM+142+N
)
1090 IF F=0 AND F1=250 THEN POKE SM+14
2+N,0:SCORE=SCORE+10:BCOUNT=BCOUNT+1
1100 IF F=250 THEN POKE SM+141+N,0:SCO
RE=SCORE+10:BCOUNT=BCOUNT+1
1110 GOSUB 1130:RETURN
1120 REM CHANGE BALL DIRECTION AFTER B
RICK HIT
1130 POSITION 1,0:PRINT #6;SCORE
1140 IF BCOUNT=54 THEN GOSUB 2170:GOSU
B 840:RETURN
1150 SOUND 1,PEEK(BALLV)-8,10,10:POKE
53768,16
1160 IF D>0 AND D<4 THEN POKE BALLV,PE
EK(BALLV)+3
1170 IF D=1 THEN POKE DIRECT,4:RETURN
1180 IF D=2 THEN POKE DIRECT,5:RETURN
1190 IF D=3 THEN POKE DIRECT,6:RETURN
1200 POKE BALLV,PEEK(BALLV)-3
1210 IF D=4 THEN POKE DIRECT,1:RETURN
1220 IF D=5 THEN POKE DIRECT,2:RETURN
```

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◄ *From Page 33*

```
1230 IF D=6 THEN POKE DIRECT,3:RETURN
1240 RETURN
1250 REM HIT BRICK ROW2
1260 N=INT((PEEK(BALLH)-55)/7.8)
1270 F=PEEK(SM+121+N):F1=PEEK(SM+122+N
)
1280 IF F=0 AND F1=186 THEN POKE SM+12
2+N,0:SCORE=SCORE+20:BCOUNT=BCOUNT+1
1290 IF F=186 THEN POKE SM+121+N,0:SCO
RE=SCORE+20:BCOUNT=BCOUNT+1
1300 GOSUB 1130:RETURN
1310 REM HIT BRICK ROW 3
1320 N=INT((PEEK(BALLH)-55)/7.8)
1330 F=PEEK(SM+101+N):F1=PEEK(SM+102+N
)
1340 IF F=0 AND F1=122 THEN POKE SM+10
2+N,0:SCORE=SCORE+30:BCOUNT=BCOUNT+1
1350 IF F=122 THEN POKE SM+101+N,0:SCO
RE=SCORE+30:BCOUNT=BCOUNT+1
1360 GOSUB 1130:RETURN
1370 RETURN
1380 REM REDEFINE CHARACTER SET
1390 DIM ML$(40)
1400 M=152
1410 POKE 106,M-1
1420 CHBASE=256*(M)
1430 RESTORE 1460:FOR L=1 TO 36:READ A
1440 ML$(L,L)=CHR$(A):NEXT L:REM COPY
ROM CHARACTER SET TO RAM
1450 A=USR(ADR(ML$),M):POKE 756,M
1460 DATA 104,104,104,133,204,169,224,
133,206,162,0,160,0,177,205,145,203,20
0,208,249
1470 DATA 164,204,200,132,204,164,206,
200,132,206,232,224,5,208,232,96
1480 FOR I=0 TO 7:READ D:REM BRICK
1490 POKE CHBASE+(58*8)+I,D:NEXT I
1500 DATA 254,254,254,254,254,254,254,
0
1510 FOR I=0 TO 7:READ D:REM BUMPER
1520 POKE CHBASE+(56*8)+I,D:NEXT I
1530 DATA 0,16,56,56,16,0,0,0
1540 RETURN
1550 RETURN
1560 REM DRAW ROWS OF BRICKS
1570 SOUND 0,0,0,0:SOUND 1,0,0,0
1580 POKE 53249,0
1590 FOR I=141 TO 158:POKE SM+I,250:NE
XT I
1600 FOR I=121 TO 138:POKE SM+I,186:NE
XT I
1610 FOR I=101 TO 118:POKE SM+I,122:NE
XT I
1620 BCOUNT=0
1630 RETURN
1640 REM START/RESTART GAME
1650 GOSUB 1560:GOSUB 2100
1660 LIVES=5:SFLAG=1:SCORE=0
1670 IF PEEK(53279)=5 THEN LEVEL=LEVEL
+1:FOR D=1 TO 20:NEXT D
1680 IF LEVEL=10 THEN LEVEL=0
1690 POSITION 16,0:? #6;LEVEL;
1700 IF PEEK(53279)=6 THEN GOSUB 1730:
RETURN
1710 GOTO 1670
1720 REM SET LEVEL PARAMETERS
1730 POSITION 6,9:? #6;"          ":RE
M 10 SPACES
1740 SFLAG=1:SCORE=0:BCOUNT=0:LIVES=5:
GOSUB 1870
1750 IF LEVEL=0 THEN POKE XDELAY,15:GO
SUB 2050
1760 IF LEVEL=1 THEN POKE XDELAY,10:GO
SUB 2050
1770 IF LEVEL=2 THEN POKE XDELAY,5:GOS
UB 2050
1780 IF LEVEL=3 THEN POKE XDELAY,10:GO
SUB 1920
1790 IF LEVEL=4 THEN POKE XDELAY,5:GOS
UB 1920
1800 IF LEVEL=5 THEN POKE XDELAY,10:N=
20:GOSUB 1970
1810 IF LEVEL=6 THEN POKE XDELAY,5:N=2
0:GOSUB 1970
1820 IF LEVEL=7 THEN POKE XDELAY,10:N=
40:GOSUB 1970
1830 IF LEVEL=8 THEN POKE XDELAY,5:N=4
0:GOSUB 1970
1840 IF LEVEL=9 THEN N=40:GOSUB 1920:G
OSUB 1970:POKE XDELAY,10
1850 GOSUB 2100:RETURN
1860 REM CLEAR BUMPERS
1870 FOR I=8 TO 20:POSITION 1,I:? #6;"
                 ":REM 17 SPACES
1880 SOUND 0,INT(RND(1)*128)+60,14,10
1890 NEXT I:SOUND 0,0,0,0
1900 RETURN
1910 REM PLOT BUMPERS LEVELS 3-4
1920 FOR I=SM+202 TO SM+217 STEP 3
1930 FOR I=SM+202 TO SM+217 STEP 3
1940 POKE I,56:POKE I+39,56:POKE I+81,
56
1950 NEXT I:RETURN
1960 REM PLOT RAMDOM BUMPERS LEVELS 6-
9
1970 FOR I=1 TO N:R=RND(1)*280:IF PEEK
(SM+120+R)=0 THEN POKE SM+120+R,56
1980 NEXT I
1990 RETURN
2000 REM GAME OVER
2010 POSITION 6,9:? #6;"game over"
2020 IF SCORE>HIGH THEN HIGH=SCORE
2030 GOSUB 2100:RETURN
2040 REM PLOT BUMPERS LEVELS 0-2
2050 POKE SM+240+10,56:POKE SM+280+9,5
6:POKE SM+280+11,56:POKE SM+320+10,56
2060 POKE SM+240+10,56:POKE SM+280+9,5
6:POKE SM+280+11,56:POKE SM+320+10,56
2070 POKE SM+282,56:POKE SM+297,56
2080 RETURN
2090 REM PRINT TOP STATUS DISPLAY
2100 POSITION 0,0:? #6;"
    ";:REM 19SPACES
2110 POSITION 0,0:? #6;"s";SCORE;
2120 POSITION 7,0:? #6;"h";HIGH;
2130 POSITION 15,0:? #6;"l";LEVEL;
2140 POSITION 18,0:? #6;"b";LIVES;
2150 RETURN
2160 REM RESTORE WALL AND ADD BONUS
2170 LIVES=LIVES+1:SCORE=SCORE+1000:SF
LAG=1:BCOUNT=0
2180 POSITION 1,0:? #6;SCORE;
2190 FOR I=60 TO 50 STEP -1
2200 FOR D=1 TO 5:NEXT D
2210 POSITION 6,9:? #6;"bonus 1000"
2220 SOUND 1,I,14,14
2230 SOUND 0,I-8,14,14
2240 FOR D=1 TO 5:NEXT D
2250 POSITION 6,9:? #6;"BONUS 1000"
2260 NEXT I:SOUND 0,0,0,0:SOUND 1,0,0,
0:GOSUB 1570:GOSUB 2100
2270 POSITION 6,9:? #6;"          ":R
EM 10 SPACES
2280 RETURN
```

## Get it right!

| | | |
|---|---|---|
| 10 CP1 (Y) | 380 3V3 (G) | 760 ENH (R) |
| 20 CP2 (3) | 390 6MJ (P) | 770 EJH (N) |
| 25 DA2 (W) | 400 CUV (W) | 780 RKG (X) |
| 30 GRN (O) | 410 L67 (L) | 790 TRN (V) |
| 40 LKM (M) | 420 5VJ (U) | 800 GW4 (2) |
| 50 O2G (7) | 430 FXQ (F) | 810 Q1R (V) |
| 60 A32 (Y) | 440 022 (G) | 820 T2N (8) |
| 70 CP7 (6) | 450 06J (7) | 830 X7G (9) |
| 80 V19 (D) | 460 GUW (F) | 840 DDO (D) |
| 90 93L (8) | 470 E2A (F) | 850 F54 (L) |
| 100 5SR (S) | 480 E6T (S) | 860 YHA (V) |
| 110 PE1 (U) | 490 E9A (X) | 870 UCK (R) |
| 120 D3S (M) | 500 AYK (4) | 880 4RV (J) |
| 130 UY7 (F) | 510 C7A (P) | 890 R4J (V) |
| 140 DCS (2) | 520 DHL (4) | 900 JX4 (F) |
| 150 7TU (9) | 530 GP2 (G) | 910 X1L (8) |
| 160 OGM (D) | 540 02X (K) | 920 UDD (A) |
| 170 TRJ (F) | 550 ML1 (J) | 930 ATG (7) |
| 180 UD1 (W) | 560 RHJ (8) | 940 RPE (5) |
| 190 X9H (G) | 570 S29 (7) | 950 DH1 (1) |
| 200 QUH (8) | 580 DUW (9) | 960 LFU (J) |
| 210 U9J (D) | 590 FFS (F) | 970 S2E (K) |
| 220 9TT (K) | 600 EAT (F) | 980 JE9 (K) |
| 230 52N (3) | 610 UHL (G) | 990 UGH (K) |
| 240 TC8 (D) | 620 5PN (V) | 1000 A4N (V) |
| 250 059 (6) | 630 XF5 (G) | 1010 C2T (L) |
| 260 8GX (A) | 640 UQG (6) | 1020 AYA (K) |
| 270 W24 (J) | 650 V41 (X) | 1030 RVK (D) |
| 280 7FP (F) | 660 RXA (K) | 1040 NQU (E) |
| 290 M9F (1) | 670 DQX (R) | 1050 KQY (D) |
| 300 GY1 (V) | 680 7KX (C) | 1060 DAN (C) |
| 310 4DG (3) | 690 Q76 (A) | 1070 SXM (O) |
| 320 AYN (F) | 700 7UC (5) | 1080 8XH (1) |
| 330 EVH (F) | 710 RAC (C) | 1090 DAF (D) |
| 340 PS3 (D) | 720 D3Y (2) | 1100 VQH (8) |
| 350 DGU (2) | 730 MQW (W) | 1110 D6X (M) |
| 360 65Y (G) | 740 CEY (V) | 1120 D6N (K) |
| 370 X7L (Y) | 750 TF2 (G) | 1130 YYN (X) |

| | | |
|---|---|---|
| 1140 930 (X) | 1530 E9P (F) | 1920 YDU (R) |
| 1150 MDV (M) | 1540 W6K (8) | 1930 YFU (G) |
| 1160 XRP (3) | 1550 W8K (F) | 1940 6UG (1) |
| 1170 KHT (R) | 1560 DXN (C) | 1950 64E (A) |
| 1180 KN2 (8) | 1570 MY1 (D) | 1960 EFN (9) |
| 1190 KSA (O) | 1580 QRM (M) | 1970 WLS (U) |
| 1200 S9H (Y) | 1590 EWY (K) | 1980 PCS (W) |
| 1210 KF2 (E) | 1600 F4X (L) | 1990 XOK (X) |
| 1220 KKA (7) | 1610 E3X (P) | 2000 CXP (U) |
| 1230 KPK (5) | 1620 XLO (P) | 2010 9N9 (H) |
| 1240 VTK (O) | 1630 W8K (H) | 2020 8CA (M) |
| 1250 DHN (6) | 1640 DXN (M) | 2030 D77 (L) |
| 1260 T4M (D) | 1650 LXN (3) | 2040 D6P (Q) |
| 1270 9OF (8) | 1660 WD3 (F) | 2050 81F (V) |
| 1280 DJY (Q) | 1670 3X5 (L) | 2060 83F (Q) |
| 1290 WHK (Q) | 1680 2KS (Q) | 2070 OMR (9) |
| 1300 DDX (A) | 1690 YF2 (W) | 2080 VTL (E) |
| 1310 DDN (E) | 1700 TQC (X) | 2090 DHP (A) |
| 1320 TOM (6) | 1710 Q2D (M) | 2100 5HX (Q) |
| 1330 8RD (1) | 1720 DXN (J) | 2110 SYW (M) |
| 1340 D9H (D) | 1730 YTW (V) | 2120 SMQ (V) |
| 1350 W3M (D) | 1740 2TX (A) | 2130 7PN (C) |
| 1360 DRX (H) | 1750 NVK (H) | 2140 6K2 (Y) |
| 1370 W4K (N) | 1760 NMP (G) | 2150 VRL (R) |
| 1380 DTN (H) | 1770 S5A (Y) | 2160 DFP (V) |
| 1390 WS1 (G) | 1780 NXF (T) | 2170 DTF (V) |
| 1400 KS4 (V) | 1790 SMK (K) | 2180 YUF (O) |
| 1410 PX7 (N) | 1800 7QU (P) | 2190 KMM (1) |
| 1420 AYA (N) | 1810 662 (A) | 2200 DAU (3) |
| 1430 D6V (Y) | 1820 7VC (X) | 2210 HAV (K) |
| 1440 RCW (1) | 1830 6AT (A) | 2220 4ED (D) |
| 1450 RG4 (G) | 1840 YOU (T) | 2230 666 (2) |
| 1460 Y4C (K) | 1850 EC6 (U) | 2240 DKU (1) |
| 1470 98T (K) | 1860 EAN (R) | 2250 91V (G) |
| 1480 V26 (2) | 1870 5DN (J) | 2260 E3Y (7) |
| 1490 V64 (1) | 1880 617 (V) | 2270 XKT (2) |
| 1500 T5H (V) | 1890 4CW (D) | 2280 W2L (7) |
| 1510 UR6 (F) | 1900 WFK (E) | |
| 1520 UT4 (F) | 1910 E4N (G) | |

# Melody Maker

## BRUCE WOODLAND starts you on the right note with this musical program

**THIS superb utility is designed to allow you to write simple tunes on to an on-screen simulated music sheet and play it back in a choice of voices. You also have full disc handling of the music files and a special facility which allows simple access to one from within your own programs.**

Music is often added to programs, either to provide mood or to fill in those tedious intervals when data is being processed and nothing exciting is happening on screen.

Atari computers contain a versatile sound generator, but unfortunately the resident Basic suffers from complicated sound handling commands. Production of even simple tunes may require much trial and error.

Furthermore, since it takes a significant time to run the SOUND command, program operation is slowed or even stopped while music is being played, and this defeats the object of its inclusion.

Melody Maker presents an attractive solution to both these criticisms and is also fun and educational. Music is written on to a music sheet on the screen using a few logically-chosen keys. Standard musical notation is used, so composition or copying from sheet music is simplicity itself.

Disc handling routines allow music files to be saved or loaded and they can be added to or played in a choice of voices. An interrupt-driven machine code routine is used to play the music, so it will continue playing during most Basic operations. This option may be saved separately so it can be added to your own programs.

When you run the program the options available – shown in Figure I – are displayed. Select W for the edit mode and enter the music using the keys shown in Figure II.

Position on the music sheet is marked by a player missile cursor which can be moved vertically on the staves by the arrow keys. You don't need to press Control. Its position is translated to the appropriate pitch. The sharp and flat keys, which modify the pitch slightly up or down, have to be selected before the note is written.

Keys 1 to 4 will write a note of the correct type (length) at the cursor's position. The note length can be prolonged by 50 per cent by preselection of the full-stop. The correct note will sound, and be stored in memory. It is also possible to delete notes if necessary.

A key signature may be set up at the start of the composition or this can be bypassed if desired. The various key functions – shown in Figure II – can be displayed on screen by pressing the I key, and these are usable at any point during composition. Only valid keys are accepted, so if you avoid Reset and Break you can't go far wrong.

The Basic END command will turn off any music, as will Reset and any disc accessing. No provision is made for accented beats, so the normal bar structure of music is conveniently ignored. In other respects Melody Maker follows standard musical notation very closely.

| Key | Note | Length |
|---|---|---|
| 1 | Semiquaver (𝅘𝅥𝅯) | 1 |
| 2 | Quaver (𝅘𝅥𝅮) | 2 |
| 3 | Crotchet (𝅘𝅥) | 4 |
| 4 | Minim (𝅗𝅥) | 8 |

*Table I: The notes available*

The program is very user-friendly and very little musical knowledge is required for its use, so an absolute novice can create superb music.

However, the complexity of the program renders it unsuitable for the smallest Atari machines such as an unmodified 400 or 600XL and cassette storage is too slow, which means a disc drive is essential to store files.

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| | |
|---|---|
| **Write Music** | Draws the music scales and puts you into editing mode. |
| **Continue** | Allows you to add to or continue with a composition in memory after using one of the main menu options. |
| **Save Tune** | Saves your composition on to disc under a filename which you choose. All melody files are identified automatically by the suffix .MUS so do not add an extender yourself. |
| **Load Old** | Displays all the valid melody files on the resident disc and you can select the one that you wish to load. |
| **Play Tune** | Plays your composition after you have made your selection from five preset voicing choices. |
| **List To Disc** | Lists a short portion of the Melody Maker to disc with the filename **MELODY.LST**. Add this to your own Basic programs avoiding the use of any of its variables in your listing and you can play any prestored disc file by first calling this routine. An excellent alternative to the notorious *Please wait – data loading...* screen. |

*Figure I: Main menu options*

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| | |
|---|---|
| **Cursor up/down** | Move the cursor to the required position on – or slightly above or below – the staves. |
| **S** | Sounds the note represented by the position of the cursor on staves without writing or storing it – useful for trial and error composing. |
| **P** | Plays the notes entered so far. Cursor position and store are unaltered and a single voice is used to avoid confusion. |
| **I** | Cycles between different on-screen instruction sets. |
| **1-4** | Write a note to the screen of the designated type shown in Table I and store its sound in memory. The cursor will then advance automatically. They are also used after the spacebar. Note identities are as follows: |
| **#,B,N** | Give a sharp, flat or normalised note if it has been preset to sharp or flat in the key signature. These keys must be selected before the note is written. |
| **Spacebar** | Allows the insertion of a musical rest or pause, with length equal to the note type (1-4) selected thereafter. Dotted rests are possible. The cursor moves one place to the right after an appropriate symbol has been drawn. |
| **Delete** | Erases the last note entered from screen and memory – multiple uses are possible. |
| **Full stop** | This should be used before the note and causes its length to be increased by 50 per cent, it's total length depending on the note type. |
| **Return** | Returns you to the main menu from where you may play or store your composition. |

*Figure II: Key commands available*

## PROGRAM VARIABLES

| | |
|---|---|
| **TUNE$** | Music storage string |
| **IOV$** | Machine code file handling |
| **NREF$** | Reference list of note frequencies |
| **KSG$** | Key of note identities for key signature translation |
| **FN$** | Disc filename string |
| **K$** | Valid keypress check list |
| **I$** | Machine code for playing tune |
| **CAP** | Maximum storage capacity of tune store |
| **KEY** | Ascii code of key presses |
| **BAS** | Start address in ram of PMG cursor |
| **DUR** | Note length |
| **LNE** | Stave group offset value |
| **NTE** | Note frequency value |
| **TAD** | Ram start of tune store |
| **MC** | Ram start of various machine code routines |
| **KP** | Positional translation of *KEY* |
| **X** | Horizontal screen index pointer |
| **Y** | Vertical screen pointer |
| **T** | Length of current tune file |

```
0 REM ******************
1 REM *  MELODY MAKER   *
2 REM *A MUSICAL UTILITY*
3 REM *  (c)ATARI USER  *
4 REM *BY BRUCE WOODLAND*
5 REM ******************
6 RESM=100:DEMO=300:MCDE=500:MENU=700
10 REM MAIN PROGRAM
20 GOSUB RESM:REM RESERVE MEMORY
30 GOSUB DEMO:REM SETUP DEMO PLAY
50 GOSUB MCDE:REM SETUP MC ROUTINE
70 GOSUB MENU:REM  MAIN ROUTING
80 GOTO 70
98 REM **************************
100 REM RESERVE MEMORY ETC
110 CAP=1024:REM Max tune length
120 A=PEEK(106)-36:GRAPHICS 8
130 POKE 54279,A:MC=A*256:BAS=512+MC
140 DIM K$(18),NREF$(15),KSG$(15)
150 DIM PICK$(20),SCALE$(15)
160 DIM TUNE$(CAP),TEMP$(255)
180 OPEN #1,4,0,"K:":TAD=ADR(TUNE$)
190 RETURN
198 REM **************************
300 REM DEMO PLAY
310 GRAPHICS 17:POKE 710,6
320 POKE 708,152:POKE 711,102
330 DL=7+PEEK(742)*256+PEEK(741)
340 POKE DL,7:POSITION 4,1
350 GOSUB 400
360 FS=0:GOSUB 9310
370 FS=1:RETURN
398 REM **************************
400 REM TITLE PAGE
410 POSITION 4,1:? #6;"MelODy MAkeR"
430 POSITION 6,6:? #6;"WRITTEN "
440 POSITION 8,8:? #6;"FOR"
450 POSITION 4,10:? #6;"atari  user"
460 POSITION 9,13:? #6;"by"
470 POSITION 5,15:? #6;"b.woodland"
480 POSITION 8,18:? #6;"1988"
490 RETURN
498 REM **************************
500 REM LOAD CODE ETC
510 K$="-=+*1234 #B.N(PSIS"
520 KSG$="BCDEFGABCDEFGAB"
530 RESTORE 650:FOR A=1 TO 15
540 READ DTA
550 SCALE$(LEN(SCALE$)+1)=CHR$(DTA)
560 NEXT A:NREF$=SCALE$
580 RESTORE 9000:FOR A=0 TO 247
590 READ DTA:POKE A+MC,DTA:NEXT A
600 CK=MC+47:ND=CK+42:MD=ND+136
621 REM Clear Sprite
630 POKE 704,236:POKE 53256,0
640 POKE 53248,0:RETURN
650 REM Sound values for scale
660 DATA 31,35,40,45,47,53,60,64
670 DATA 72,81,91,96,108,121,128
680 REM SPRITE CURSOR DATA
690 DATA 96,144,144,96
698 REM **************************
700 REM MAIN MENU
710 GRAPHICS 17:POKE 710,236
720 POKE 711,22:POKE 708,168
730 POKE 709,102:POKE DL+1,7
750 POKE 87,0:RESTORE 910
770 ? :? "  MELODY  MAKER"
780 ? " FOR ATARI 800XL"
790 FOR A=1 TO 6:READ PICK$
800 POSITION 5,2+A:? PICK$:NEXT A
810 ? " option or start"
820 MX=4:MY=3
830 POSITION MX,MY:? " ";
840 IF PEEK(53279)=6 THEN 890
850 IF PEEK(53279)>5 THEN 830
860 IF PEEK(53279)<>7 THEN 860
870 MY=MY+1:IF MY>1+A THEN 820
880 GOTO 830
890 GOSUB MY*1000
900 RETURN
910 DATA write music,continue
```

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● Atari 800XL, 1050 disc drive, original software plus other games and joystick £120. Tel: 0733 47605.

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```
920 DATA save tune,load old
930 DATA play tune,list to disc
998 REM **************************
3000 REM WRITE MUSIC
3010 T=0:REM Clear tune store(MC)
3020 FOR A=0 TO CAP STEP 256
3030 X=USR(CK,ADR(TUNE$),255,0)
3040 NEXT A
3050 MVE=3500:PLAY=7300:NRM=4600
3060 WSHP=4500:SND=4760:EXT=4650
3070 WFLT=4700:PAU=4900:SHARP=0
3080 DEL=4800:WRTE=4100:KSIG=3700
3090 INST=3800:PFVE=7400
3100 GRAPHICS 8:X=52:Y=24:LNE=0
3105 CALL=USR(CK,BAS,255,0)
3110 GOSUB 3300:REM  Draw Staves
3120 STRT=PEEK(88)+PEEK(89)*256
3130 POKE 559,46:POKE 53277,3
3140 KP=4:GOSUB MVE:GOSUB KSIG
3150 GET #1,KEY:KP=0:SOUND 1,0,0,0
3155 IF KEY=42 OR KEY=43 THEN 3150
3160 IF KEY<>155 THEN 3190
3170 GOSUB 3650:POKE 559,39
3180 POKE 53277,0:POKE 53248,0:RETURN
3190 KP=USR(CK,ADR(K$),LEN(K$),KEY)
3200 IF  NOT KP THEN 3150
3210 SCRN=STRT+(X-48)/4+(Y-15+LNE)*80
3220 R=KP-6:IF KP<8 THEN R=2
3230 IF KP<5 THEN R=1
3240 ON R GOSUB MVE,WRTE,PAU,WSHP,WFLT
,EXT,NRM,DEL,PLAY,SND,INST,PFVE
3250 IF LNE<=57 THEN 3150
3260 POKE 559,39:POKE 53277,0
3270 POKE 53248,0:GOTO 3100
3298 REM **************************
3300 REM DRAW MUSIC SHEET
3310 POKE 710,6:POKE 709,0:COLOR 1
3320 FOR A=12 TO 130 STEP 38
3330 FOR B=0 TO 16 STEP 4:PLOT 0,B+A
3340 DRAWTO 319,B+A:DRAWTO 319,A+12
3350 PLOT 16,B+A:DRAWTO 16,A+12
3360 NEXT B:GOSUB 3400:NEXT A
3370 RETURN
3398 REM **************************
3400 REM DRAW CLEFS
3410 PLOT 4,A+B:RESTORE 3450
3420 FOR CL=0 TO 10:READ CX,CY
3430 DRAWTO CX,CY+A-20:NEXT CL
3440 RETURN
3450 REM Data for Clef draw
3460 DATA 8,36,8,16,10,18,12,20
3470 DATA 3,28,3,32,8,36,13,32
3480 DATA 13,30,6,29,6,33,10,31
3498 REM **************************
3500 REM MOVE
3510 IF KP>5 THEN RETURN
3520 P=1:IF KP>2 THEN P=8
3530 IF KP=3 OR KP=1 THEN P=-P
3540 GOSUB 3640
3560 IF ABS(P)>1 THEN X=X+P
3570 IF ABS(P)<2 THEN Y=Y+P
3580 IF Y=17 OR Y=32 THEN Y=Y-P
3590 IF X>200 THEN X=60:LNE=LNE+19
3600 RESTORE 680
3610 POKE 53248,X:FOR A=0 TO 3
3620 READ B:POKE BAS+A+Y+LNE,B
3630 NEXT A:RETURN
3640 REM BLANK CURSOR
3650 RESTORE 680:FOR A=0 TO 3
3660 POKE BAS+LNE+A+Y,0:NEXT A
3670 RETURN
3698 REM **************************
3700 REM FLAG KEY SIGNATURE
3710 ? "Key signature? Y/N":GET #1,A
3720 IF A<>89 THEN KP=0:GOTO INST
3730 KSG=1:? CHR$(125);"Right:-"
3740 ? "Position with cursor keys."
3750 ? "Then write in with # or B."
3760 GET #1,A:RETURN
3798 REM **************************
3800 REM INSTRUCTIONS
3810 IF KP=4 THEN GOSUB MVE
3820 POKE 82,1:POKE 752,1
3830 RESTORE 3902+INS:? CHR$(125);
3840 ? "              Instructions"
3850 READ TEMP$:? TEMP$
3860 INS=INS+2:IF INS=12 THEN INS=0
```

```
3870 IF INS<>2 THEN ? " Key I=More.";
3880 POKE 82,2:POKE 752,0:RETURN
3898 REM ***************************
3900 REM USER INSTRUCTIONS
3902 DATA Press I for keycode informat
ion
3904 DATA 1=S/Quaver 2=Quaver 3=Crotch
et 4=Minim These keys write in the not
es
3906 DATA #=Sharp b=Flat .=Long Note N
=Natural   Press these before writing
note
3908 DATA P=Play Stored Tune S=Sound N
ote Only   Delete=Rubs Out Last Note
3910 DATA Cursor UP/Down moves the cur
sor to the required position on staves
3912 DATA Space bar=set length of musi
cal rest   Return=Back to the main Men
u
3998 REM ***************************
4000 REM CONTINUE
4020 T=-1
4030 T=T+1
4040 IF PEEK(TAD+T)<>0 THEN 4030
4050 GOTO 3050
4098 REM ***************************
4100 REM SCREEN WRITE
4110 VDT=(KP-5)*25:OFS=400
4120 IF Y-16<9 THEN VDT=VDT+10:OFS=0
4130 Z=USR(MC,15,MD+VDT,SCRN-OFS)
4140 GOSUB 4200:SHARP=0:NS=0
4150 KP=4:GOSUB MVE:RETURN
4198 REM ***************************
4200 REM STORE WRITE
4210 B=Y-16:NTE=ASC(SCALE$(B,B))
4220 IF  NOT SHARP THEN 4250
4230 NTE=NTE+(NTE*SHARP*0.045)
4240 IF SHARP=2 THEN NTE=ASC(NREF$(B,B
))
4250 DUR=2^(KP-5)*6
4260 IF LNTH THEN DUR=DUR*3/2
4270 SOUND 1,NTE,10,15
4280 IF NS=1 THEN RETURN
4290 REM Store
4300 IF T+DUR>CAP THEN RETURN
4310 POKE TAD+T,NTE:POKE TAD+T+1,DUR
4330 T=T+2:POKE TAD+T,0
4340 LNTH=0:SHARP=0:RETURN
4498 REM ***************************
4500 REM SHARPS
4510 SHARP=-1:OFS=121
4520 IF KSG>0 AND Y/2>INT(Y/2) THEN OF
S=120
4530 Z=USR(MC,10,MD,SCRN-OFS)
4540 IF KSG=1 THEN 7500
4550 RETURN
4598 REM ***************************
4600 REM NORMALISE
4610 OFS=41:SHARP=2
4620 Z=USR(MC,7,MD+24,SCRN-OFS)
4630 RETURN
4648 REM ***************************
4650 REM EXTENDER
4660 Z=USR(MC,3,MD+10,SCRN+41)
4670 LNTH=1:RETURN
4698 REM ***************************
4700 REM FLATS
4710 SHARP=1:OFS=161
4720 IF KSG>0 AND Y/2>INT(Y/2) THEN DI
SP=160
4730 Z=USR(MC,10,MD+14,SCRN-OFS)
4740 IF KSG=1 THEN 7500
4750 RETURN
4758 REM ***************************
4760 REM SOUND ONLY
4770 NS=1:GOSUB 4200:NS=0:RETURN
4798 REM ***************************
4800 REM DELETE
4805 IF X+LNE=60 AND T>0 THEN 4890
4810 IF X=60 AND LNE=0 THEN RETURN
4820 IF X>60 THEN 4840
4830 GOSUB 3640:X=204:LNE=LNE-19
4840 DTE=STRT+(X-56)/4+(3+LNE)*80
4850 FOR A=0 TO 36:POKE DTE+A*40,0
4860 NEXT A:FOR A=6 TO 22 STEP 4
4870 POKE DTE+A*40,255:NEXT A
4880 KP=3:GOSUB MVE
4890 T=T-2:POKE TAD+T,0:RETURN
4898 REM ***************************
4900 REM REST LENGTH
4910 ? CHR$(125);"Rest length?(1-4)"
4920 ? "Rest = length of note type."
4930 GET #1,L:L=L-48
4940 IF L<1 OR L>4 THEN 4930
4950 VD=(L-1)*9+100
4960 SCRN=STRT+(X-48)/4+(LNE+8)*80
4970 Z=USR(MC,9,MD+VD,SCRN):NTE=1
4980 DUR=2^L*6:GOSUB 4300:KP=4
4990 GOTO INST
5000 REM SAVE TUNE
5010 MDE=8:GRAPHICS 0
5020 POSITION 8,0
5030 ? "SAVE MELODY AS DISK FILE"
```



```
5040 ? :? "Filename ";:INPUT PICK$
5050 IF LEN(PICK$)<2 THEN ? :RETURN
5060 IF LEN(PICK$)>7 THEN 5000
5070 FN$="D:":FN$(3)=PICK$
5080 FN$(LEN(FN$)+1)=".MUS"
5090 GOSUB 9380:RETURN
5098 REM ***************************
6000 REM LOAD FILE
6010 GRAPHICS 0:MDE=4:A=0
6020 OPEN #2,6,0,"D:*.MUS"
6030 ? CHR$(125):POSITION 12,0
6040 ? "MELODY FILES"
6050 INPUT #2,TEMP$
6060 IF TEMP$(5,8)="FREE" THEN 6110
6070 A=A+1:? "               ";A;
6080 ? TEMP$(1,10):IF A<18 THEN 6050
6090 ? "Space for more."
6100 GET #1,S:IF A=32 THEN 6030
6110 TRAP 40000:CLOSE #2:TRAP 6220
6120 ? "Select tune...";:INPUT FN$
6130 S=VAL(FN$):IF S>A THEN 6220
6140 OPEN #2,6,0,"D:*.MUS"
6150 FOR B=1 TO S:INPUT #2,TEMP$
6160 NEXT B:CLOSE #2:A=3
6170 A=A+1
6180 IF TEMP$(A,A)>"0" THEN 6170
6190 FN$=TEMP$(1,A-1):FN$(1,2)="D:"
6200 FN$(LEN(FN$)+1)=".MUS"
6210 GOSUB 9380
6220 TRAP 40000:RETURN
6398 REM ***************************
7000 REM PLAY TUNE
7010 GRAPHICS 0
7020 ? CHR$(125):POSITION 14,0
7030 ? "MELODY MAKER":POSITION 10,3
7040 ? " Play Resident Tune":?
7050 ? :? "Select:- 1. Mid Voice"
7060 ? "           2. Low Voice"
7070 ? "           3. Three Voices"
7080 ? "           4. Hi/Lo Voices"
7090 ? "           5. Lo/Mid Voice"
7100 ? :? "Your Choice:-";
7110 GET #1,A:? CHR$(A):A=A-48
7120 IF A<1 OR A>5 THEN 7020
7130 HI=0:MID=0:LO=0
7140 IF A>1 THEN LO=10
7150 IF INT(A/2)<A/2 THEN MID=10
7160 IF A=4 OR A=3 THEN HI=10
7170 SOUND 2,0,HI,HI
7180 SOUND 1,0,MID,MID
7190 SOUND 0,0,LO,LO
7200 Z=USR(ADR(I$),TAD)
7210 ? :? "More...";:GET #1,A
7220 IF A=89 THEN 7020
7230 RETURN
7298 REM ***************************
7300 REM PLAY
7310 SOUND 1,0,10,12
7320 Z=USR(ADR(I$),TAD)
7330 RETURN
7398 REM ***************************
7400 REM PLAY LAST 5
7410 A=0:IF T>10 THEN A=10
7420 SOUND 1,0,10,12
7430 Z=USR(ADR(I$),TAD-A+T)
7440 RETURN
7500 REM SWAP FOR KEY SIGNATURE
7510 TEMP$=KSG$(Y-16,Y-16):P=1
7520 IF KP=10 THEN P=-1
7530 FOR B=1 TO LEN(KSG$)
7540 NTE=ASC(NREF$(B,B))
7550 IF TEMP$<>KSG$(B,B) THEN 7570
7560 SCALE$(B,B)=CHR$(NTE+NTE*(0.046*P
))
7570 NEXT B:? "Finished?";
7580 GET #1,A:IF A=78 THEN RETURN
7590 SHARP=0:KSG=0:KP=4:GOTO 3800
7598 REM ***************************
8000 REM USER LIST
8010 GRAPHICS 0:POSITION 8,0
8020 ? "USER FILE TO DISK"
8030 ? :? "Insert disk then press ";
8040 ? "any key...";:GET #1,A
8050 LIST "D:MELODY.LST",9300,9750
8060 ? :? :? "SAVED AS 'MELODY.LST'"
8070 GET #1,A:RETURN
9000 REM DATA
9001 REM SCREEN WRITE & OR DATA
9002 DATA 104,42,170,202,104,149,210
9003 DATA 224,0,208,248,160,0,177,210
9004 DATA 17,212,145,210,24,165,210
```

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```
9005 DATA 105,40,133,210,144,2,230
9006 DATA 211,24,165,212,105,1,133
9007 DATA 212,144,2,230,213,232,228
9008 DATA 214,208,223,96
9010 REM CL+KSCN
9011 DATA 104,42,170,104,149,203,202
9012 DATA 208,250,165,204,208,10,160
9013 DATA 0,145,208,200,196,206,208
9014 DATA 249,96,164,206,165,204,209
9015 DATA 208,240,3,136,16,247,200
9016 DATA 132,212,169,0,133,213,96
9100 REM Note shape data
9110 DATA 28,30,19,29,31,19,25,25,24,2
4,120,120,252,120,112,96,96,100,98,102
,126,122,102,124,120
9120 DATA 28,30,19,25,26,24,24,24,24,2
4,56,120,252,120,112,96,96,96,96,96,10
0,98,102,124,120
9130 DATA 24,24,24,24,24,24,24,24,24,2
4,56,120,252,120,112,96,96,96,96,96,96
,96,96,96,96
9140 DATA 24,24,24,24,24,24,24,24,24,2
4,56,72,204,72,112,96,96,96,96,96,96,9
6,96,96,96
9150 REM Pause symbols data
9160 DATA 4,52,52,12,4,4,52,52,4
9170 DATA 4,52,52,12,4,4,4,4,4
9180 DATA 32,44,44,48,32,32,32,32,32
9190 DATA 0,0,62,62,0,0,0,0,0
9200 REM Note modifier data
9210 DATA 10,10,31,31,10
9220 DATA 10,31,31,10,10
9230 DATA 64,224,64
9240 DATA 8,8,8,8,8,8,15,9,9,15
9298 REM ************************
9300 REM USER LISTING
9305 CAP=2048:DIM TUNE$(CAP):TAD=ADR(T
UNE$)
9310 DIM CIOV$(6),I$(106),FN$(20)
9320 FN$="D:*.MUS":MDE=4
9330 RESTORE 9500
9340 FOR A=0 TO 111:READ DTA
9350 POKE ADR(CIOV$)+A,DTA:NEXT A
9380 TRAP 9480:OPEN #2,MDE,0,FN$
9390 M=INT(CAP/256):L=CAP-M*256
9400 POKE 872,L:POKE 873,M
9410 M=INT(TAD/256):L=TAD-M*256
9420 POKE 868,L:POKE 869,M
9430 MDE=MDE+3:POKE 866,MDE
9440 CALL=USR(ADR(CIOV$))
9450 CLOSE #2:IF FS THEN RETURN
9460 SOUND 0,0,10,14:SOUND 2,0,10,12
9470 CALL=USR(ADR(I$),TAD)
9480 TRAP 40000:CLOSE #2:RETURN
9500 REM CIOV
9510 DATA 104,162,32,76,86,228
9600 REM PLAY ROUTINE
9610 DATA 104,104,133,209,104,133,208
9620 DATA 24,165,212,105,30,141,40
9630 DATA 2,169,0,133,207,101,213
9640 DATA 141,41,2,169,1,141,26
9650 DATA 2,96,72,152,72,165,207
9660 DATA 240,10,160,0,177,208,240
9670 DATA 52,201,1,240,15,24,42
9680 DATA 141,0,210,106,141,2,210
9690 DATA 74,141,4,210,240,18,24
9700 DATA 200,177,208,72,165,208,105
9710 DATA 2,133,208,144,2,230,209
9720 DATA 104,208,2,169,1,141,26
9730 DATA 2,165,207,73,1,133,207
9740 DATA 104,168,104,96,141,1,210
9750 DATA 141,3,210,141,5,210,240,232
```

**Get it right!**

| | | |
|---|---|---|
| 0 CAH (V) | 498 EGV (2) | 998 EH1 (N) |
| 1 CAJ (1) | 500 CUW (8) | 3000 CXQ (J) |
| 2 CAK (Y) | 510 FHW (W) | 3010 TQ1 (6) |
| 3 CAL (O) | 520 EYE (W) | 3020 Q16 (S) |
| 4 CAM (R) | 530 X22 (R) | 3030 RLD (A) |
| 5 CAN (1) | 540 VK9 (2) | 3040 MGU (C) |
| 6 2Y1 (X) | 550 3A2 (2) | 3050 X35 (Q) |
| 10 CP1 (1) | 560 GY2 (8) | 3060 X1H (N) |
| 20 YW4 (O) | 580 222 (W) | 3070 X2Q (2) |
| 30 XO5 (8) | 590 U5N (8) | 3080 V93 (G) |
| 50 XK7 (2) | 600 RKN (H) | 3090 EDC (S) |
| 70 Y89 (C) | 621 D5X (R) | 3100 VJE (Y) |
| 80 KKU (G) | 630 RS2 (9) | 3105 PSU (E) |
| 98 DP9 (V) | 640 EC6 (1) | 3110 2CR (3) |
| 100 CUS (K) | 650 DGX (A) | 3120 P1G (J) |
| 110 RRR (J) | 660 J8S (S) | 3130 PHV (P) |
| 120 SHT (D) | 670 K8G (2) | 3140 W4F (G) |
| 130 72C (4) | 680 DUX (G) | 3150 VDA (V) |
| 140 R6G (P) | 690 71S (Y) | 3155 49G (W) |
| 150 Q32 (R) | 698 EGX (H) | 3160 Q8C (T) |
| 160 RAQ (K) | 700 CUY (R) | 3170 P48 (6) |
| 180 YJ9 (S) | 710 TPL (4) | 3180 8LD (H) |
| 190 SA5 (N) | 720 PSN (V) | 3190 EHO (3) |
| 198 EGS (W) | 730 QGF (Q) | 3200 H2N (R) |
| 300 CUU (J) | 750 F80 (D) | 3210 5KD (4) |
| 310 PAG (1) | 770 FDQ (F) | 3220 QAL (O) |
| 320 QGT (W) | 780 9HA (M) | 3230 9A6 (F) |
| 330 STW (8) | 790 S9C (Q) | 3240 NHA (F) |
| 340 P86 (9) | 800 T9Y (L) | 3250 G7W (8) |
| 350 PFL (U) | 810 S13 (W) | 3260 PSF (W) |
| 360 8KX (3) | 820 XGF (O) | 3270 HP1 (T) |
| 370 OKL (W) | 830 HNX (P) | 3298 EOQ (V) |
| 398 EGU (Q) | 840 L1D (W) | 3300 DAQ (S) |
| 400 CUV (V) | 850 LOD (Q) | 3310 W8D (3) |
| 410 QUT (9) | 860 R59 (Y) | 3320 J1L (M) |
| 430 X08 (8) | 870 P6Y (C) | 3330 758 (3) |
| 440 83L (Y) | 880 RYF (H) | 3340 4FN (K) |
| 450 UMX (6) | 890 TEH (4) | 3350 P2A (R) |
| 460 EVW (A) | 900 R6E (4) | 3360 NSM (M) |
| 470 Y4G (X) | 910 QSX (W) | 3370 W4M (L) |
| 480 SM9 (6) | 920 OE2 (W) | 3398 E4Q (N) |
| 490 SA8 (G) | 930 A9C (N) | 3400 DFQ (L) |

| | | |
|---|---|---|
| 3410 N6K (V) | 3906 EME (H) | 4698 EHR (F) |
| 3420 UEW (L) | 3908 97K (V) | 4700 DTR (F) |
| 3430 XPD (H) | 3910 E9K (N) | 4710 9HL (C) |
| 3440 W2M (M) | 3912 ES4 (G) | 4720 N7H (W) |
| 3450 DRQ (L) | 3998 EVQ (D) | 4730 1NV (1) |
| 3460 G2P (G) | 4000 CXR (G) | 4740 F94 (E) |
| 3470 GE6 (E) | 4020 D6L (P) | 4750 WHN (G) |
| 3480 F9U (7) | 4030 KFU (Y) | 4758 EDR (G) |
| 3498 E8Q (2) | 4040 WVQ (U) | 4760 E6R (F) |
| 3500 DKQ (4) | 4050 PCG (P) | 4770 UQ1 (5) |
| 3510 CN2 (G) | 4098 DRR (P) | 4798 EMR (6) |
| 3520 HL1 (E) | 4100 D2R (N) | 4800 DXR (1) |
| 3530 U1J (R) | 4110 FTY (5) | 4805 59E (Q) |
| 3540 TA2 (1) | 4120 9P1 (2) | 4810 9X8 (3) |
| 3560 U68 (2) | 4130 OV9 (8) | 4820 5M4 (1) |
| 3570 U87 (A) | 4140 UCM (U) | 4830 SDX (N) |
| 3580 PPN (K) | 4150 V2U (1) | 4840 VJY (L) |
| 3590 4NU (X) | 4198 DVR (1) | 4850 3CG (1) |
| 3600 YC1 (3) | 4200 D6R (3) | 4860 NJ3 (V) |
| 3610 M5O (G) | 4210 PKN (R) | 4870 RKH (5) |
| 3620 UGV (A) | 4220 U2M (2) | 4880 E66 (J) |
| 3630 54G (7) | 4230 SLD (2) | 4890 XM3 (F) |
| 3640 DXQ (1) | 4240 C9O (W) | 4898 ERR (A) |
| 3650 2K7 (G) | 4250 4TO (5) | 4900 E2R (E) |
| 3660 R8W (P) | 4260 QED (J) | 4910 OKG (5) |
| 3670 WHM (L) | 4270 6FF (P) | 4920 CRJ (J) |
| 3698 EHQ (Q) | 4280 CW6 (Y) | 4930 2XF (O) |
| 3700 DTQ (H) | 4290 DRR (Y) | 4940 M6A (5) |
| 3710 CXY (Q) | 4300 V9Y (3) | 4950 5R1 (A) |
| 3720 Y76 (4) | 4310 GFJ (4) | 4960 39M (K) |
| 3730 XW4 (H) | 4330 AVC (P) | 4970 XYK (E) |
| 3740 72R (M) | 4340 P5R (6) | 4980 OKA (O) |
| 3750 MHE (M) | 4498 E8R (4) | 4990 TSG (X) |
| 3760 ATE (E) | 4500 DKR (5) | 5000 CXS (V) |
| 3798 EMQ (9) | 4510 AUC (E) | 5010 AMN (A) |
| 3800 DXQ (9) | 4520 LAP (2) | 5020 YP8 (3) |
| 3810 TH3 (U) | 4530 OYX (7) | 5030 044 (Q) |
| 3820 86K (G) | 4540 F14 (A) | 5040 5VP (T) |
| 3830 691 (Q) | 4550 W8N (9) | 5050 4K8 (1) |
| 3840 220 (L) | 4598 EDR (C) | 5060 LQ7 (Y) |
| 3850 8DH (Y) | 4600 DPR (C) | 5070 88G (6) |
| 3860 AG9 (9) | 4610 5FG (J) | 5080 P6E (M) |
| 3870 RWC (N) | 4620 WE6 (N) | 5090 DWA (Q) |
| 3880 SL5 (1) | 4630 W8N (P) | 5098 DRS (P) |
| 3898 ERQ (2) | 4648 E6R (P) | 6000 CXT (Q) |
| 3900 E2Q (2) | 4650 EOR (Q) | 6010 F5Q (A) |
| 3902 212 (V) | 4660 URK (D) | 6020 5LL (C) |
| 3904 M5U (S) | 4670 80H (E) | 6030 RTV (A) |

| | | |
|---|---|---|
| 6040 AWV (X) | 7330 VVR (9) | 9160 FVF (X) |
| 6050 7YK (D) | 7398 E4U (C) | 9170 F9P (N) |
| 6060 OAU (Q) | 7400 DFU (9) | 9180 SX6 (F) |
| 6070 CXY (X) | 7410 P5H (A) | 9190 EUP (4) |
| 6080 2S8 (7) | 7420 4E5 (W) | 9200 D6W (C) |
| 6090 NA1 (E) | 7430 Q6G (K) | 9210 26E (M) |
| 6100 N2Q (5) | 7440 W2R (K) | 9220 26J (G) |
| 6110 2TG (8) | 7500 DKU (H) | 9230 OWK (U) |
| 6120 CQ4 (M) | 7510 KD2 (M) | 9240 GVD (Q) |
| 6130 UQO (F) | 7520 EE3 (N) | 9298 EOW (U) |
| 6140 5UL (F) | 7530 E24 (4) | 9300 DAW (M) |
| 6150 TOH (H) | 7540 8QD (C) | 9305 GFT (V) |
| 6160 29Q (X) | 7550 5J3 (H) | 9310 QUT (H) |
| 6170 KMY (P) | 7560 6X9 (D) | 9320 4MC (T) |
| 6180 SCC (Y) | 7570 U54 (L) | 9330 Y73 (L) |
| 6190 22E (4) | 7580 UUP (M) | 9340 RRA (T) |
| 6200 NXF (P) | 7590 YME (X) | 9350 SE2 (J) |
| 6210 SWN (S) | 7598 EDU (Y) | 9380 PA7 (8) |
| 6220 9E6 (K) | 8000 CXV (H) | 9390 RJO (5) |
| 6398 E4T (J) | 8010 VQX (K) | 9400 L5K (3) |
| 7000 CXU (J) | 8020 H4G (W) | 9410 RMR (5) |
| 7010 WKS (W) | 8030 87V (O) | 9420 LCT (L) |
| 7020 RTW (W) | 8040 TWY (2) | 9430 UJ4 (U) |
| 7030 75P (Y) | 8050 USR (O) | 9440 D12 (O) |
| 7040 AHW (M) | 8060 6X5 (H) | 9450 Y3T (8) |
| 7050 TWL (3) | 8070 AOK (1) | 9460 XCN (1) |
| 7060 A8W (3) | 9000 CXW (G) | 9470 GVW (8) |
| 7070 16F (5) | 9001 CYW (1) | 9480 WMV (2) |
| 7080 OW2 (7) | 9002 SMV (A) | 9500 DKW (F) |
| 7090 5MT (E) | 9003 T72 (N) | 9510 FT8 (2) |
| 7100 081 (E) | 9004 RC8 (6) | 9600 DPW (G) |
| 7110 NYC (C) | 9005 NO9 (3) | 9610 S4D (D) |
| 7120 JYG (R) | 9006 NG3 (E) | 9620 NMT (C) |
| 7130 CTE (F) | 9007 QUK (U) | 9630 F6F (X) |
| 7140 DOR (3) | 9008 246 (L) | 9640 GJ2 (N) |
| 7150 SM2 (8) | 9010 DOW (W) | 9650 GHO (3) |
| 7160 PVY (R) | 9011 T24 (X) | 9660 PF7 (G) |
| 7170 6LD (P) | 9012 RT4 (4) | 9670 GOL (C) |
| 7180 9P6 (A) | 9013 SAY (V) | 9680 GTC (P) |
| 7190 73T (8) | 9014 TQX (1) | 9690 GWM (D) |
| 7200 9HK (W) | 9015 MNC (T) | 9700 T27 (9) |
| 7210 MT4 (M) | 9016 NFO (P) | 9710 G1G (D) |
| 7220 51H (C) | 9100 D2W (R) | 9720 F8Q (T) |
| 7230 VRR (9) | 9110 HU6 (9) | 9730 GT8 (H) |
| 7298 EOU (C) | 9120 HCH (W) | 9740 N4Q (2) |
| 7300 DAU (A) | 9130 6A2 (J) | 9750 SYE (K) |
| 7310 475 (X) | 9140 7AX (7) | |
| 7320 9RK (C) | 9150 DDW (8) | |

# SOFTWARE *Solutions*

## Your programming problems solved by ANDRÉ WILLEY

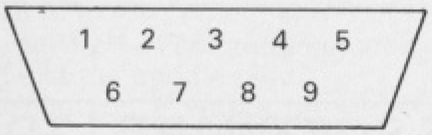
**WHETHER you're a first time user or a seasoned professional, I've no doubt that your Atari played a big part in the recent seasonal fun – but most likely as a games machine rather than a computer. Even I must admit to having spent a fair bit of time on the old joystick myself – which brings me round to our first question, from Kumar Neppalli of Mid-Lothian in Scotland, who writes:**

*It is really amazing how few books there are that deal with the technical aspect of Atari 8 bit machines. It has been frustrating me for some time now to find out how the joystick port works, and what its configuration is.*

*My main questions are:*

- *What is the joystick pin configuration?*
- *How does the touch tablet work?*

Let's tackle the joystick connections first. Looking towards the side of the computer the pins are numbered as follows:




1 Forward movement (Up)
2 Backward movement (Down)
3 Left
4 Right
5 Paddle A (0 or 2)
6 Trigger button
7 +5 volts
8 Ground
9 Paddle B (1 or 3)

*Figure I: The joystick connector*

The first four pins are detected by four bits within location 54016 ($D300). The lower four handle joystick socket one while the high four bits handle socket two. Bits 0/4 function with pin 1, 1/5 with pin 2, 2/6 to pin 3 and 3/7 with pin 4. Each of these are normally set to 1, and they drop to zero to indicate a movement of the stick.

The trigger button status may be found at location 53264 ($D010) for socket one and at 53265 ($D011) for socket two. These addresses are normally zero and they change to one when the relevant trigger is pressed. By using POKE 53277,4 you can *latch* both of the trigger buttons. This means that, once pressed, the value will remain in the register until it is specifically cleared – even after you have released the trigger.

These locations are the actual hardware addresses, but you will find it more convenient to use the shadow registers lower in memory, which are updated automatically by the OS 50 times a second.

Joysticks one and two show up separately at 632 and 633 respectively and the trigger buttons show up at 644 and 645. From Basic these values can be read by using STICK(0), STICK(1), STRIG(0) and STRIG(1).

Additionally to the digital (on/off) joystick system, the Atari also boasts four analogue-to-digital converters. These are used to detect the movement of paddles – such as those used to play Breakout – and each contains a resistor giving a continuously variable voltage on pins five and nine of each joystick connector.

The computer converts the values from each of the four paddle controllers into numbers between 0 and 228 which may then be found at locations 53760 to 53763 ($D200 – $D203). As before, shadow locations are available at 624 to 627 and the Basic functions PADDLE(0) to PADDLE(3) are also available.

Because there are two paddles connected to each joystick socket, they can't be connected to the single trigger line – so pin three gives the Paddle 0 trigger and pin 4 gives that of Paddle 1. These may also be read using PTRIG(0) to PTRIG(3).

Now on to part two of your question. The touch tablet contains two resistance pads – one going from top to bottom and the other from left to right.

The slightest pressure at any point on the pad connects a given resistance value to the paddle A and B connections, so they are converted to digital values between 0 and 228 for both directions. The three buttons show up on pins one, three and four and may be picked up using STICK(0).

Here is a small program to illustrate the use of the touch tablet:

```
10 GRAPHICS 8:SETCOLOR 2,0,0:SETCOLOR
1,0,14:POKE 752,1
20 X=PADDLE(0)*319/228
30 Y=159-PADDLE(1)*159/228
40 S=STICK(0)
50 SOUND 0,228-PADDLE(0),10,10
60 SOUND 1,228-PADDLE(1),10,10
70 IF S=14 THEN COLOR 1:PLOT X,Y
80 IF S=11 THEN COLOR 1:DRAWTO X,Y
90 IF S=7 THEN COLOR 0:PLOT X,Y
100 ? CHR$(125);:IF S=15 THEN 20
110 IF S=14 THEN ? "PEN BUTTON (PLOT)"
120 IF S=11 THEN ? "LEFT BUTTON (DRAW)"
130 IF S=7 THEN ? "RIGHT BUTTON (ERASE)"
140 IF S=10 THEN ? "PEN/LEFT BUTTON"
150 IF S=6 THEN ? "PEN/RIGHT BUTTON"
160 IF S=3 THEN ? "LEFT/RIGHT BUTTON"
170 IF S=2 THEN ? "ALL THREE BUTTONS"
180 GOTO 20
```

## Printer problems

The next letter is from **Mr Hill** from Stranraer.

*Having written a program which determines the solution to a problem dependant on the input from the user, I would like to dump the displayed solution to my 1029 printer.*

*Also, when I write software and run into difficulties. I would like to be able to print selected lines or groups of lines for later examination.*

*I am at present unable to do either of these, and any screen dump programs previously published are only intended for use with graphics screens and are not really suitable. I do hope you will be able to help me with this problem.*

The listing problem is the easiest one to answer – all you need to do is use the LIST "P:" command to list to the printer. Follow it with two optional

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line numbers: The starting line number for the listing and the last line number to print. If you only give one number you'll get a single line listed to the printer.

For example:

```
LIST "P:",100
```

would list line 100 on the printer, while:

```
LIST "P:",500,1000
```

would list all the lines from number 500 to 1000.

There are two possible solutions to your other question. One is to print the answer to the printer instead of the screen – which will only work if you print the lines sequentially rather than using a lot of POSITION statements to move about the screen. My series on I/O channels gave some information on re-vectoring the screen output to the printer, but you will probably find it easier to alter your program slightly.

Firstly you must remember to OPEN a channel to the printer at the start of your program, and CLOSE it again at the end. Assuming we will use channel #1 for these examples, you would use:

```
OPEN #1,8,0,"P:"
```

and

```
CLOSE #1
```

If you want to print lines on the printer rather than the screen you should replace any PRINT or ? statements with PRINT #1.

You could, for example, use the following routine.

```
10 OPEN #1,8,0,"P:"
20 GRAPHICS 0:LIST :LIST
30 X1=5:X2=25
40 Y1=5:Y2=15
50 GOSUB 1000
60 CLOSE #1
70 END
1000 REM PRINTOUT ROUTINE
1010 FOR Y=Y1 TO Y2
1020 FOR X=X1 TO X2
1030 LOCATE X,Y,CH
1040 PRINT #1;CHR$(CH);
1050 NEXT X
1060 PRINT #1
1070 NEXT Y
1080 RETURN
```

Variables *X1* and *X2* are used to specify the horizontal size of the text dump – use X1=0 and X2=39 for the full line width. *Y1* and *Y2* perform the same task for the vertical axis – with Y1=0 and Y2=23 giving the full height of the screen.

Don't forget that you must have issued a GRAPHICS command before LOCATE can work – so the routine won't function correctly without the GRAPHICS 0 command somewhere earlier in the program.

You could have PEEKed the values of the characters directly from the screen ram but then you'd have to convert them back to standard Ascii codes before the printer would accept them – all of which would slow the routine down considerably.

The only disadvantage with using LOCATE is that it will corrupt the current cursor position, so don't forget to reset it with the POSITION command before you print any more text to the screen.

● *I'll be back next month with more answers to your technical queries, so keep them coming in. And how about all you new users who've just received an XE system for Christmas – what problems are you facing right now? Write in and let me know.*

# COLOUR PUZZLE

**GAMES of strategy have always intrigued the human mind, and this one – an advanced version of the old sliding block puzzle – certainly has you in all sorts of trouble.**

After the title screen is displayed press Start to begin. The display will go blank, then a 5 x 5 colour grid will be drawn, giving you 24 coloured squares and one black one.

The middle nine squares are surrounded by a white line – remember that these are the important squares in the puzzle. In the bottom right corner of the screen a smaller nine square grid displays the pattern you are required to create.

These small squares can't be moved, but you can move the large ones in Rubik cube style – after plugging a joystick into port one. It is possible to move the blank square in four directions – up, down, left and right. When this is done the blank square will swap places with the square adjacent to it, in the direction indicated by joystick movement. The only requirement for movement is that the blank square is in the direction of travel.

At first the movement of the squares seems strange, but you will soon get used to it. Also note that it is possible to move all 24 coloured squares, and not just the middle nine.

When you have got the nine large squares to match the small ones press the fire button: The program will then shuffle the colours of the squares for a new game. You will then be given your time and the number of moves you needed to finish the puzzle.

Each time the puzzle is played the starting positions and colours of the large and small squares will be different.

## PROGRAM BREAKDOWN

| | |
|---|---|
| 55 – 160 | Think of a new screen |
| 165 – 210 | Draw screen |
| 220 – 320 | Main loop |
| 999 – 1040 | Set up small squares |
| 2000 – 5040 | Movement of squares |
| 6000 – 6220 | Title screen |

## PROGRAM VARIABLES

| | |
|---|---|
| puz(9) | Colours of the small nine squares. |
| col(25) | Colours of the large 25 squares. |
| btime | Best time so far. |
| c0 | Position of the black square. |
| x,y | Corner of the black square. |
| go | Number of moves the player has taken so far. |

**By MICHAEL O'CONNOR**

```
1 REM COLOUR PUZZLE
2 REM BY MICHAEL O'CONNOR
3 REM (c)ATARI USER MAGAZINE
10 DIM PUZ(9),COL(25):BTIME=1000:TIME=
1000
20 GOSUB 6000:GRAPHICS 10:GO=0:REM TIT
LE SCREEN
30 DATA 10,26,58,74,106,170,15
40 RESTORE 30
50 FOR T=0 TO 6:READ C:POKE 705+T,C:NE
XT T
55 REM SET UP RANDOM COLOURS
60 C1=4:C2=4:C3=4:C4=4:C5=4:C6=4
70 FOR T=1 TO 24
80 Z=INT(RND(0)*6)+1
90 IF Z=1 AND C1>0 THEN C1=C1-1:GOTO 1
60
100 IF Z=2 AND C2>0 THEN C2=C2-1:GOTO
160
110 IF Z=3 AND C3>0 THEN C3=C3-1:GOTO
160
120 IF Z=4 AND C4>0 THEN C4=C4-1:GOTO
160
130 IF Z=5 AND C5>0 THEN C5=C5-1:GOTO
160
140 IF Z=6 AND C6>0 THEN C6=C6-1:GOTO
160
150 GOTO 80
160 COL(T)=Z:NEXT T:COL(25)=0:TIM=1
165 REM DRAW BOARD
170 FOR X=0 TO 59 STEP 12:FOR Y=1 TO 1
70 STEP 34
180 COLOR COL(TIM):TIM=TIM+1
190 FOR X1=X TO X+10:PLOT X1,Y:DRAWTO
X1,Y+32:NEXT X1
200 NEXT Y:NEXT X:COLOR 7:PLOT 11,34:D
RAWTO 47,34:DRAWTO 47,136:DRAWTO 11,13
6:DRAWTO 11,34
210 GOSUB 1000:REM SET UP PUZZLE
220 REM START
230 C0=25:X=48:Y=137:POKE 18,0:POKE 19
,0:POKE 20,0
240 POKE 77,0:S=STICK(0):ST=STRIG(0):S
OUND 0,0,0,0
241 IF PEEK(53279)=1 THEN 530
250 POKE 77,0:IF PEEK(53279)=6 THEN 20
260 IF ST=0 THEN 500
270 IF S=15 THEN 240
280 GO=GO+1:IF S=13 AND Y>34 THEN LOCA
TE X+3,Y-10,Z:C0=C0-1:GOSUB 2000:REM D
OWN
290 IF S=14 AND Y<127 THEN LOCATE X+3,
Y+36,Z:C0=C0+1:GOSUB 3000:REM UP
300 IF S=7 AND X>10 THEN LOCATE X-5,Y+
5,Z:C0=C0-5:GOSUB 4000:REM RIGHT
310 IF S=11 AND X<48 THEN LOCATE X+15,
Y+5,Z:C0=C0+5:GOSUB 5000:REM LEFT
320 GOTO 240
499 REM FINISHED??
500 TI=0
510 FOR Q=15 TO 39 STEP 12:FOR W=36 TO
 130 STEP 34:TI=TI+1:LOCATE Q,W,Z:IF Z
<>PUZ(TI) THEN POP :GOTO 270
520 NEXT W:NEXT Q
530 TIME=(PEEK(19)*256+PEEK(20))/50
540 FOR A=0 TO 255 STEP 5:POKE 711,255
-A:SOUND 0,A,8,10:SOUND 1,255-A,10,10
550 Z=PEEK(705):FOR P=705 TO 711:POKE
P,PEEK(P+1):NEXT P:POKE 712,2:NEXT A:S
OUND 0,0,0,0:SOUND 1,0,0,0
560 GOSUB 600:REM GIVE TIME ETC..
580 GOTO 20
600 GRAPHICS 0:POKE 710,55:POKE 709,15
:POKE 712,148:POKE 752,1
605 ? :? :? :?
610 ? "Well done!-you have completed t
he      puzzle in ";TIME;" seconds and
";GO;" moves."
620 FOR DE=1 TO 750:NEXT DE:IF TIME<BT
IME THEN BTIME=TIME
630 RETURN
999 REM PUZZLE
1000 FOR M=1 TO 9:A=INT(RND(0)*6)+1:PU
Z(M)=A:NEXT M
1010 V=1:FOR N=63 TO 73 STEP 5:FOR M=1
72 TO 184 STEP 6:COLOR PUZ(V):V=V+1:FO
R N1=N TO N+3:PLOT N1,M:DRAWTO N1,M+4
1020 NEXT N1
1030 NEXT M:NEXT N
1040 RETURN
1999 REM MOVEMENT
2000 REM DOWN
2010 COLOR Z:FOR X1=X TO X+10:PLOT X1,
Y:DRAWTO X1,Y+32:SOUND 0,X1,10,10:NEXT
 X1
2020 Y=Y-34
2030 COLOR 0:FOR X1=X TO X+10:PLOT X1,
Y:DRAWTO X1,Y+32:SOUND 0,X1,10,10:NEXT
 X1
```

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```
2040 RETURN
3000 REM UP
3010 COLOR Z:FOR X1=X TO X+10:PLOT X1,
Y:DRAWTO X1,Y+32:SOUND 0,X1,10,10:NEXT
 X1
3020 Y=Y+34
3030 COLOR 0:FOR X1=X TO X+10:PLOT X1,
Y:DRAWTO X1,Y+32:SOUND 0,X1,10,10:NEXT
 X1
3040 RETURN
4000 REM RIGHT
4010 COLOR Z:FOR X1=X TO X+10:PLOT X1,
Y:DRAWTO X1,Y+32:SOUND 0,X1,10,10:NEXT
 X1
4020 X=X-12
4030 COLOR 0:FOR X1=X TO X+10:PLOT X1,
Y:DRAWTO X1,Y+32:SOUND 0,X1,10,10:NEXT
 X1
4040 RETURN
5000 REM LEFT
5010 COLOR Z:FOR X1=X TO X+10:PLOT X1,
Y:DRAWTO X1,Y+32:SOUND 0,X1,10,10:NEXT
 X1
5020 X=X+12
5030 COLOR 0:FOR X1=X TO X+10:PLOT X1,
Y:DRAWTO X1,Y+32:SOUND 0,X1,10,10:NEXT
 X1
5040 RETURN
6000 REM TITLE SCREEN
6010 GRAPHICS 17
6020 ? #6;"   COLOUR PUZZLE"
6030 ? #6
6040 ? #6;"         By"
6050 ? #6
6060 ? #6;"  MiChAeL o CoNnOr"
6070 ? #6
6080 ? #6;"   (c) aTaRi UsEr"
6090 ? #6
6100 ? #6;"      MaGaZiNe"
6110 ? #6
6120 ? #6
6130 ? #6;"  LaSt TiMe:";TIME
6140 ? #6
6150 ? #6;"  BeSt TiMe:";BTIME
6160 ? #6
6170 ? #6;"    press start"
6180 A=0
6190 POKE 708,PEEK(20):POKE 709,A:POKE
 710,255-PEEK(20):POKE 711,255-A
6200 A=A+1:IF A>255 THEN A=0
6210 IF PEEK(53279)=6 THEN RETURN
6220 POKE 77,0:GOTO 6190
```

**Get it right!**

| | | | | | |
|---|---|---|---|---|---|
| 1 CAJ (W) | 140 97F (V) | 290 MJL (E) | 630 RKA (2) | 3040 VKM (6) | 6060 YG1 (W) |
| 2 CAK (3) | 150 PW7 (F) | 300 H4E (O) | 999 EK1 (2) | 4000 CXR (5) | 6070 D7A (L) |
| 3 CAL (V) | 160 YDF (1) | 310 ANK (Y) | 1000 Y72 (W) | 4010 315 (A) | 6080 3QK (7) |
| 10 LAL (Y) | 165 DWS (E) | 320 QJ9 (F) | 1010 62F (5) | 4020 NK5 (J) | 6090 DCA (A) |
| 20 V8X (O) | 170 SDG (K) | 499 EJV (3) | 1020 PPS (2) | 4030 1U5 (L) | 6100 PSG (J) |
| 30 JGJ (F) | 180 ND5 (Q) | 500 D8J (W) | 1030 319 (4) | 4040 VKN (K) | 6110 CYA (X) |
| 40 SUV (V) | 190 7U1 (W) | 510 UOM (E) | 1040 VKK (O) | 5000 CXS (H) | 6120 D1A (J) |
| 50 JUN (F) | 200 NLD (K) | 520 YRP (M) | 1999 EWN (1) | 5010 316 (X) | 6130 W4Q (H) |
| 55 DA5 (Q) | 210 PL3 (A) | 530 YHJ (C) | 2000 CXP (4) | 5020 NK4 (2) | 6140 D5A (X) |
| 60 PKP (O) | 220 D3T (6) | 540 H8D (K) | 2010 313 (E) | 5030 1U6 (1) | 6150 6SY (1) |
| 70 RYV (L) | 230 W5T (5) | 550 C5D (U) | 2020 NXE (T) | 5040 VKP (1) | 6160 D9A (G) |
| 80 8S6 (Y) | 240 OOX (L) | 560 QLQ (V) | 2030 1U3 (X) | 6000 CXT (O) | 6170 27R (C) |
| 90 5FK (J) | 241 KK6 (H) | 580 PJC (9) | 2040 VKL (S) | 6010 WPA (7) | 6180 DHK (J) |
| 100 7XA (S) | 250 9RD (1) | 600 MHY (X) | 3000 CXQ (W) | 6020 TO2 (N) | 6190 1XT (U) |
| 110 88L (R) | 260 5WV (V) | 605 SP4 (J) | 3010 314 (N) | 6030 CYA (T) | 6200 MQ1 (F) |
| 120 8KV (5) | 270 4Q5 (E) | 610 US9 (X) | 3020 NXD (5) | 6040 3LT (J) | 6210 XUH (G) |
| 130 8W5 (J) | 280 R2T (C) | 620 D4V (D) | 3030 1U4 (O) | 6050 D3A (Y) | 6220 96X (6) |

# MONITOR THE MUSIC

**THE two main features people notice first about Atari computers are their sound and graphic capabilities. Even though internally generated computer music can sound superb, you can never get a micro to create accurately the sound of your favourite rock mega star.**

## CRAIG SMITH and MARK HARRIS scan the channels to give some amazing rhythmical displays

But with this fun and very easy-to-use program you can put your own pop, rock or classical music tapes in any Atari tape recorder and hear the music through the TV speaker.

The program also controls the movement of five vertical bouncing bars – which simulate the peak scan on a hi-fi – in time with the music.

Type in the program – remembering to check it using Get it Right! – then save a copy to tape or disc. To use it, all you have to do is press Reset, place the music cassette of your choice into the tape recorder and press play.

Now run the program: The main screen is drawn and then the tape motor is turned on by the command POKE 54018,52. Music will now come through the micro to the TV speaker.

The program looks at 16 locations between lines 53775 to 54015 to see if a value of 239 is found – this figure is present if a sound of a strong enough level exists. These are then used to control the movement of the bars up and down the screen, so the louder the music the more the bars beat to the music.

The routine can be easily modified to create other interesting effects such as flashing lights or drawing graphical designs in time with the music. So Roll over Beethoven – let's have some music.

### PROGRAM BREAKDOWN

| | |
|---|---|
| 10–35 | Set up variables, turn cursor off and alter screen display |
| 40–260 | Draw the main screen |
| 290 | Turns the cassette motor on |
| 300–350 | Set the calculated GOTO statements |
| 400–650 | Peek the locations to detect if any music is present |
| 700–1420 | Draw the bars that beat to the music |
| 1500–1550 | Draw black lines across the screen |

```
1 REM GRAPHIC EQUALISER
2 REM (C)ATARI USER
3 REM C.SMITH AND M.HARRIS
4 GOSUB 1500:REM DRAW LINES
10 ? CHR$(125):REM CLEAR SCREEN
15 ? CHR$(253):REM BLEEP
17 POKE 709,1:REM CHARACTER BRIGHTNESS
 LEVEL
20 POKE 710,8:REM SCREEN COLOURS
25 POKE 752,1:REM REMOVE CURSOR
35 LET L1=1:L2=1:L3=1:L4=0:L5=0:L6=0:L
7=0:DIM T1$(50),T2$(55),T3$(60),T4$(65
),T5$(70)
37 REM LINES 40-260=DRAW SCREEN
40 T1$=" EQUALIZER.       ":T2$=" GRAPHIC
":T3$=" ATARI":T4$=" M.HARRIS.        ":T
5$="    BY C.SMITH        & "
50 POSITION L1,0:? T1$
52 L1=L1+1
54 IF L1=25 THEN GOTO 60
56 GOTO 50
60 POSITION L2,0:? T2$
62 L2=L2+1
64 IF L2=15 THEN GOTO 70
66 GOTO 60
70 POSITION L3,0:? T3$
72 L3=L3+1
74 IF L3=5 THEN GOTO 80
76 GOTO 70
80 POSITION 0,L4:? "▌":POSITION 39,L5:
? "▐"
90 L4=L4+1:L5=L5+1
100 IF L4=22 THEN GOTO 120
110 GOTO 80
120 POSITION L6,21:? T4$
125 L6=L6+1
130 IF L6=26 THEN GOTO 150
135 GOTO 120
150 POSITION L7,21:? T5$
155 L7=L7+1
160 IF L7=2 THEN GOTO 200
165 GOTO 150
200 POSITION 1,1:? "◤":POSITION 38,1:?
 "◥":POSITION 1,20:? "◣":POSITION 38,2
0:? "◢"
210 POSITION 5,3:? "┌┐":POSITION 12,3
:? "┌┐":POSITION 19,3:? "┌┐":POSITIO
N 26,3:? "┌┐":POSITION 33,3:? "┌┐"
220 POSITION 5,18:? "└┘":POSITION 12,
18:? "└┘":POSITION 19,18:? "└┘":POSI
TION 26,18:? "└┘"
```

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```
230 POSITION 33,18:? "└┘"
240 FOR F=4 TO 17:POSITION 5,F:? "|":P
OSITION 7,F:? "|":POSITION 12,F:? "|":
POSITION 14,F:? "|"
250 POSITION 19,F:? "|":POSITION 21,F:
? "|":POSITION 26,F:? "|":POSITION 28,
F:? "|":POSITION 33,F:? "|"
260 POSITION 35,F:? "|":NEXT F
270 POSITION 4,2:? "100Hz":POSITION 11
,2:? "500Hz":POSITION 18,2:? "1KHz":PO
SITION 25,2:? "5KHz"
280 POSITION 32,2:? "10KHz"
290 POKE 54018,52:REM ENABLE DATA RECO
RDER
300 REM SET GOTO VALUE'S
310 B1H1=700:B1H2=750:B1H3=800
320 B2H1=850:B2H2=900:B2H3=950
330 B3H1=1000:B3H2=1050:B3H3=1100
340 B4H1=1150:B4H2=1200:B4H3=1250
350 B5H1=1300:B5H2=1350:B5H3=1400
400 REM DETECT MUSIC BEATS
500 IF PEEK(53775)=239 THEN GOTO B1H1
510 IF PEEK(53791)=239 THEN GOTO B1H2
520 IF PEEK(53807)=239 THEN GOTO B1H3
530 IF PEEK(53823)=239 THEN GOTO B2H1
540 IF PEEK(53839)=239 THEN GOTO B2H2
550 IF PEEK(53855)=239 THEN GOTO B2H3
560 IF PEEK(53871)=239 THEN GOTO B3H1
570 IF PEEK(53887)=239 THEN GOTO B3H2
580 IF PEEK(53903)=239 THEN GOTO B3H3
590 IF PEEK(53935)=239 THEN GOTO B4H1
600 IF PEEK(53951)=239 THEN GOTO B4H2
610 IF PEEK(53967)=239 THEN GOTO B4H3
620 IF PEEK(53983)=239 THEN GOTO B5H1
630 IF PEEK(53999)=239 THEN GOTO B5H2
640 IF PEEK(54015)=239 THEN GOTO B5H3
650 POKE 77,0:GOTO 500
700 REM BAR 1 ALTITUDE 1
710 FOR L=17 TO 12 STEP -1:POSITION 6,
L:? "█":COLOR 3:NEXT L
720 FOR L=12 TO 17:POSITION 6,L:? " ":
NEXT L
730 GOTO 500
750 REM BAR 1 ALTITUDE 2
760 FOR L=17 TO 8 STEP -1:POSITION 6,L
:? "█":NEXT L
770 FOR L=8 TO 17:POSITION 6,L:? " ":N
EXT L
780 GOTO 500
800 REM BAR 1 ALTITUDE 3
810 FOR L=17 TO 4 STEP -1:POSITION 6,L
:? "█":NEXT L
820 FOR L=4 TO 17:POSITION 6,L:? " ":N
EXT L
830 GOTO 500
850 REM BAR 2 ALTITUDE 1
860 FOR L=17 TO 12 STEP -1:POSITION 13
,L:? "█":NEXT L
870 FOR L=12 TO 17:POSITION 13,L:? " "
:NEXT L
880 GOTO 500
900 REM BAR 2 ALTITUDE 2
910 FOR L=17 TO 8 STEP -1:POSITION 13,
L:? "█":NEXT L
920 FOR L=8 TO 17:POSITION 13,L:? " ":
NEXT L
930 GOTO 500
950 REM BAR 2 ALTITUDE 3
960 FOR L=17 TO 4 STEP -1:POSITION 13,
L:? "█":NEXT L
970 FOR L=4 TO 17:POSITION 13,L:? " ":
NEXT L
980 GOTO 500
1000 REM BAR 3 ALTITUDE 1
1010 FOR L=17 TO 12 STEP -1:POSITION 2
0,L:? "█":NEXT L
1020 FOR L=12 TO 17:POSITION 20,L:? "
":NEXT L
1030 GOTO 500
1050 REM BAR 3 ALTITUDE 2
1060 FOR L=17 TO 8 STEP -1:POSITION 20
,L:? "█":NEXT L
1070 FOR L=8 TO 17:POSITION 20,L:? " "
:NEXT L
1080 GOTO 500
1100 REM BAR 3 ALTITUDE 3
1110 FOR L=17 TO 4 STEP -1:POSITION 20
,L:? "█":NEXT L
1120 FOR L=4 TO 17:POSITION 20,L:? " "
:NEXT L
1130 GOTO 500
1150 REM BAR 4 ALTITUDE 1
1160 FOR L=17 TO 12 STEP -1:POSITION 2
7,L:? "█":NEXT L
1170 FOR L=12 TO 17:POSITION 27,L:? "
":NEXT L
1180 GOTO 500
1200 REM BAR 4 ALTITUDE 2
1210 FOR L=17 TO 8 STEP -1:POSITION 27
,L:? "█":NEXT L
1220 FOR L=8 TO 17:POSITION 27,L:? " "
:NEXT L
1230 GOTO 500
1250 REM BAR 4 ALTITUDE 3
1260 FOR L=17 TO 4 STEP -1:POSITION 27
,L:? "█":NEXT L
1270 FOR L=4 TO 17:POSITION 27,L:? " "
:NEXT L
1280 GOTO 500
1300 REM BAR 5 ALTITUDE 1
1310 FOR L=17 TO 12 STEP -1:POSITION 3
4,L:? "█":NEXT L
1320 FOR L=12 TO 17:POSITION 34,L:? "
":NEXT L
1330 GOTO 500
1350 REM BAR 5 ALTITUDE 2
1360 FOR L=17 TO 8 STEP -1:POSITION 34
,L:? "█":NEXT L
1370 FOR L=8 TO 17:POSITION 34,L:? " "
:NEXT L
1380 GOTO 500
1400 REM BAR 5 ALTITUDE 3
1410 FOR L=17 TO 4 STEP -1:POSITION 34
,L:? "█":NEXT L
1420 FOR L=4 TO 17:POSITION 34,L:? " "
:NEXT L
1430 GOTO 500
1450 REM SET UP SCREEN
1500 FOR X=0 TO 54:READ D:POKE 1536+X,
D:NEXT X
1510 DATA 16,16,80,66,255,255,0,2,0,2,
0,2,0,2,0,2,0,2,0,2,0,2,0,2,0,2
1520 DATA 0,2,0,2,0,2,0,2,0,2,0,2,0,2,
0,2,0,2,0,2,0,2,0,2,0,2,65,0,6
1530 POKE 1536+4,PEEK(88):POKE 1536+5,
PEEK(89)
1540 POKE 560,0:POKE 561,6
1550 RETURN
```

Get it right!

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 CAJ (W) | 60 D5E (Q) | 150 D5W (A) | 320 N8H (N) | 610 7RR (P) | 830 QSF (C) | 1030 NVV (Y) | 1230 P4V (Q) | 1430 PDV (R) |
| 2 CAK (3) | 62 KGW (N) | 155 NGD (Q) | 330 LST (V) | 620 7WR (G) | 850 DHO (F) | 1050 D8N (R) | 1250 DHN (J) | 1450 DRN (W) |
| 3 CAL (V) | 64 CM3 (S) | 160 E4R (L) | 340 M9A (E) | 630 82H (F) | 860 8L6 (O) | 1060 CAD (A) | 1260 C44 (V) | 1500 W5Y (4) |
| 4 T79 (L) | 66 LAR (J) | 165 R97 (2) | 350 MKA (V) | 640 85H (V) | 870 T6J (W) | 1070 VF6 (X) | 1270 VLX (H) | 1510 6LQ (R) |
| 10 PQT (1) | 70 D66 (X) | 200 T77 (T) | 400 CUV (Q) | 650 922 (W) | 880 REF (O) | 1080 P6V (5) | 1280 PFV (A) | 1520 518 (5) |
| 15 QGT (J) | 72 KHH (G) | 210 XLF (X) | 500 7EG (E) | 700 CUY (N) | 900 CV1 (6) | 1100 D2N (3) | 1300 DAN (E) | 1530 NVQ (J) |
| 17 T7P (7) | 74 DPJ (V) | 220 3RM (A) | 510 7JY (Y) | 710 MR5 (2) | 910 3MT (U) | 1110 AMD (P) | 1310 8G3 (L) | 1540 H8T (S) |
| 20 S17 (3) | 76 LAT (M) | 230 HA8 (5) | 520 7P7 (M) | 720 KLT (N) | 920 KAV (C) | 1120 V46 (2) | 1320 UNG (4) | 1550 W8K (Y) |
| 25 T5Q (Q) | 80 44Y (E) | 240 13G (F) | 530 7U7 (Y) | 730 QSE (2) | 930 QSG (K) | 1130 POV (U) | 1330 P8V (V) | |
| 35 G71 (N) | 90 051 (R) | 250 RWX (M) | 540 7YY (G) | 750 DGY (8) | 950 DH1 (P) | 1150 DDN (V) | 1350 DMN (T) | |
| 37 DK3 (C) | 100 E41 (W) | 260 XSO (5) | 550 84G (G) | 760 329 (7) | 960 48P (4) | 1160 8J7 (6) | 1360 CQV (S) | |
| 40 WAF (G) | 110 PE7 (E) | 270 C4A (8) | 560 89G (F) | 770 ERC (M) | 970 KPV (N) | 1170 UQL (N) | 1370 VUP (V) | |
| 50 D4M (K) | 120 CSN (V) | 280 X2D (C) | 570 8F7 (7) | 780 REE (6) | 980 REG (9) | 1180 PAV (F) | 1380 PKV (6) | |
| 52 KGA (5) | 125 N33 (C) | 290 8WV (Y) | 580 8K7 (9) | 800 CVO (1) | 1000 CXN (G) | 1200 D6N (9) | 1400 DFN (2) | |
| 54 CQV (9) | 130 EM6 (A) | 300 CUU (L) | 590 8QG (6) | 810 2F6 (F) | 1010 82C (8) | 1210 CA4 (3) | 1410 C1V (5) | |
| 56 LAP (1) | 135 QQ7 (R) | 310 MLK (K) | 600 7MO (P) | 820 DVD (L) | 1020 U8Q (6) | 1220 VEX (G) | 1420 VJP (3) | |

# Van Gogh junior

**MATTHEW AUGIER presents a fun art package for youngsters**



**RECENTLY my young brother has decided that he wants to be another Van Gogh: He uses my commercial art packages all the time to draw his masterpieces, but has problems with the complex range of commands designed for older age groups.**

We looked around for a package aimed at young children but couldn't find any, so we created Child Artist. It is designed to be simple and easy to use for children of any age – providing they are old enough to be using a computer in the first place.

It's a four colour art program and nearly all the drawing options can be used by just pressing the function keys and moving the joystick, although some keyboard input is needed.

Figure I shows the drawing options available by pressing the function keys while Figure II shows the keys used to scroll through the available colours – the defaults are red, white, blue and green.

Once the program has initialised you are presented with a blank graphics Mode 2 screen with a triangular cursor at the top left. This is joystick controlled and can have a variety of shapes and colours which you can use to design any pictures you want by just moving the cursor around the screen and pressing the fire button to leave the shape.

Pictures can be saved on disc and each one only takes up two sectors, containing the screen information followed by the colour register information – 708 to 711 – and the colour of the cursor – 704. A picture can have a filename of eight characters and the program automatically adds the extender of .CPC to the name.

It is important to note that before a file can be loaded the cursor must be positioned at the top of the screen. This prevents the accidental erasure of a drawing by loading a file on top of it.

The program's player missile graphics are written in machine code so that movement is smooth and easy to see. The data for the shape of the cursor can be easily changed, so you can have hours of fun creating your own designs. Break has been disabled so you can't accidently lose your picture, and the attract mode has been switched off.

| Key | Function |
|---|---|
| **Start** | Alters colours using the keys in Figure II. Spacebar exits this mode |
| **Start+Select** | Saves picture |
| **Start+Option** | Loads picture |
| **Start+Select+Option** | Clears screen |

*Figure I: Options available*

| | |
|---|---|
| **Colour** | 1 2 3 4 |
| **Luminance up *** | Q E T U |
| **Luminance down *** | A D G J |
| **Escape** | Makes the cursor invisible. Spacebar brings it back. |
| **Spacebar** | Allows you to alter the shape and colour of the cursor by moving the joystick – pressing the spacebar again exits this mode. |

** These keys scroll through the brightness level of the corresponding colour.*

*Figure II: Keyboard controls*

```
10 REM ********************
20 REM *   CHILD ARTIST   *
30 REM *        BY        *
40 REM *  MATTHEW AUGIER  *
50 REM *                  *
60 REM *  (c)ATARI USER   *
70 REM ********************
80 GRAPHICS 2+16:POKE 710,119:POKE 709,14:POKE 708,57:GOSUB 1580
90 POKE 711,187:DIM COL(4):COL(1)=55:COL(2)=12:COL(3)=117:COL(4)=185:CR=1:CL=1:CD=32
100 DIM LT$(1),RW(20),FL$(20)
110 GOSUB 540:GOSUB 840:GOSUB 330
120 POKE 704,COL(CL):POKE 764,255:? #6;CHR$(125)
130 S=STICK(0):IF PEEK(764)=33 THEN GOSUB 370:GOTO 130
140 POKE 16,64:POKE 53774,64:POKE 77,0:POKE 694,0:POKE 702,64
150 IF PEEK(764)=28 THEN POKE 704,0
160 IF PEEK(53279)=6 THEN GOSUB 1080:REM CHANGE COLOUR
170 IF PEEK(53279)=2 THEN GOSUB 1250:REM LOAD SCREEN
180 IF PEEK(53279)=4 THEN GOSUB 1360:REM SAVE SCREEN
190 IF PEEK(53279)=0 THEN ? #6;"K":REM CLEAR SCREEN
200 IF STRIG(0)=0 THEN GOSUB 290
210 IF S=15 THEN 130
220 FOR PO=1 TO 3:SOUND 1,X+Y/2,10,15-(PO*5):NEXT PO
230 IF S=11 AND X>48 THEN GOSUB 1020:GOTO 130
240 IF S=7 AND X<200 THEN GOSUB 1040:GOTO 130
250 IF S=14 AND Y>15 THEN GOSUB 1050:G
```

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◀ *From Page 47*

```
OTO 130
260 IF S=13 AND Y<103 THEN GOSUB 1060:GOTO 130
270 GOTO 130
280 REM PRINT SHAPE ON SCREEN
290 X1=(X-48)/8:Y1=(Y-15)/8
300 IF CR=22 THEN COLOR 0:PLOT X1,Y1:GOTO 130
310 COLOR CR+CD:PLOT X1,Y1
320 RETURN
330 REM SHOW PLAYER MISSILE
340 GOSUB 890
350 E=USR(A,B,C+Y,D):POKE 53248,X:RETURN
360 REM CHANGE SHAPE
370 POKE 764,255
380 S=STICK(0):IF PEEK(764)=33 THEN POKE 764,255:RETURN
390 IF S=15 THEN 380
400 FOR PO=1 TO 3:SOUND 1,200,10,10:NEXT PO:SOUND 1,0,0,0
410 IF S=7 THEN CR=CR+1:IF CR=23 THEN CR=1
420 IF S=11 THEN CR=CR-1:IF CR=0 THEN CR=22
430 LT$=CHR$(CR):GOSUB 1000:GOSUB 340:REM SET CHR$ + REDEFINE PM
440 IF S=7 OR S=11 THEN 380
450 IF S=14 THEN CL=CL+1:IF CL>4 THEN CL=1
460 IF S=13 THEN CL=CL-1:IF CL=0 THEN CL=4
470 POKE 704,COL(CL)
480 IF CL=1 THEN CD=32
490 IF CL=2 THEN CD=0
500 IF CL=3 THEN CD=160
510 IF CL=4 THEN CD=128
520 GOTO 380
530 REM REDEFINE CHR$ SET
540 CH=(PEEK(106)-8)*256:CHORG=(PEEK(756)*256):FOR I=0 TO 511:SOUND 0,I/4,10,10:POKE CH+I,PEEK(CHORG+I):NEXT I
550 FOR CHR=1 TO 22:FOR Y=0 TO 7:SOUND 0,((CHR*7)+Y+149)/1.22,10,10
560 POKE 16,64:POKE 53774,64
570 READ NUM:POKE CH+CHR*8+Y,NUM:NEXT Y:NEXT CHR
580 POKE 756,CH/256:LT$="├":SOUND 0,0,0,0
590 RETURN
600 REM DATA FOR CHR$
610 DATA 1,3,7,15,31,63,127,255
620 DATA 255,254,252,248,240,224,192,128
630 DATA 128,192,224,240,248,252,254,255
640 DATA 255,127,63,31,15,7,3,1
650 DATA 255,255,255,255,255,255,255,255
660 DATA 15,15,15,15,15,15,15,15
670 DATA 240,240,240,240,240,240,240,240
680 DATA 0,0,0,0,255,255,255,255
690 DATA 255,255,255,255,0,0,0,0
700 DATA 255,231,195,129,129,195,231,255
710 DATA 0,24,60,126,126,60,24,0
720 DATA 24,60,126,255,255,126,60,24
730 DATA 170,85,170,85,170,85,170,85
740 DATA 3,15,31,63,127,127,255,255
750 DATA 192,240,248,252,254,254,255,255
760 DATA 255,255,254,254,252,248,240,192
770 DATA 255,255,127,127,63,31,15,3
780 DATA 252,240,224,192,128,128,0,0
790 DATA 63,15,7,3,1,1,0,0
800 DATA 0,0,128,128,192,224,240,252
810 DATA 0,0,1,1,3,7,15,63
820 DATA 255,129,129,129,129,129,129,255
830 REM PLAYER MISSILE GRAPHICS
840 GOSUB 900
850 TEMP=PEEK(106)-8:PMBASE=256*TEMP:X=48:Y=15
860 POKE 16,64:POKE 53774,64
870 D=USR(ADR(POK$),54279,TEMP,559,46,53277,3,53248,X,704,216)
880 POKE PMBASE+512,0:D=USR(ADR(MOV$),PMBASE+512,PMBASE+513,128)
890 A=ADR(MOV$):B=ADR(PLAYER$):C=PMBASE+512:D=10:POKE 623,1:RETURN
900 RESTORE 910:DIM POK$(25):FOR L=1 TO 25:READ N:POK$(L,L)=CHR$(N):NEXT L
910 DATA 104,74,170,160,0,104,133,255,104,133,254,104,240,4,200,145,254,136,104,145,254,202,208,237,96
920 RESTORE 930:DIM MOV$(39):FOR L=1 TO 39:READ N:MOV$(L,L)=CHR$(N):NEXT L
930 DATA 104,104,133,215,104,133,214,104,133,217,104,133,216,104,133,218,104,170,160,0,177,214,145,216,200,208,4
940 DATA 230,215,230,217,202,208,242,198,218,16,238,96
950 RESTORE 960:DIM MOVU$(47):FOR L=1 TO 47:READ N:MOVU$(L,L)=CHR$(N):NEXT L
960 DATA 104,104,133,255,104,133,254,104,133,253,104,133,252,104,170,24,101,255,133,255,138,24,101,253,133,253
970 DATA 104,168,177,254,145,252,136,192,255,208,247,198,253,198,255,202,224,255,208,238,96
980 DIM PLAYER$(10):GOSUB 1000:RETURN
990 REM DEFINE PM
1000 PLAYER$(1,1)="♥":PLAYER$(10,10)="♥"
1010 FOR Q=0 TO 7:PLAYER$(Q+2,Q+2)=CHR$(PEEK(CH+(ASC(LT$))*8+Q)):NEXT Q:RETURN
1020 FOR T=0 TO 7:X=X-1:GOSUB 330:NEXT T:RETURN
1030 REM MOVE PM GRAPHICS
1040 FOR T=0 TO 7:X=X+1:GOSUB 330:NEXT T:RETURN
1050 FOR T=0 TO 7:Y=Y-1:GOSUB 330:NEXT T:RETURN
1060 FOR T=0 TO 7:Y=Y+1:GOSUB 330:NEXT T:RETURN
1070 REM CHANGE COLOUR
1080 POKE 764,255
1090 A=PEEK(764)
1100 POKE 16,64:POKE 53774,64
1110 IF A=33 THEN POKE 764,255:GOTO 1220
1120 IF A=255 THEN 1090
1130 IF A=47 AND PEEK(709)<255 THEN POKE 709,PEEK(709)+1:POKE 764,255
1140 IF A=63 AND PEEK(709)>2 THEN POKE 709,PEEK(709)-1:POKE 764,255
1150 IF A=42 AND PEEK(710)<255 THEN PO
```

**Get it right!**

| | | |
|---|---|---|
| 10 CP1 (Y) | 560 MHO (D) | 1110 63C (G) |
| 20 CP2 (3) | 570 07H (G) | 1120 8XG (W) |
| 30 CP3 (X) | 580 S4U (L) | 1130 OKT (H) |
| 40 CP4 (4) | 590 SA9 (U) | 1140 UH1 (3) |
| 50 CP5 (Y) | 600 CUX (K) | 1150 073 (N) |
| 60 CP6 (7) | 610 H8H (5) | 1160 T4U (C) |
| 70 CP7 (X) | 620 XLH (E) | 1170 OGM (D) |
| 80 RLC (M) | 630 XKT (V) | 1180 T9V (J) |
| 90 SP1 (H) | 640 JPE (J) | 1190 OJ9 (F) |
| 100 HXH (W) | 650 Y9D (4) | 1200 UQG (5) |
| 110 UUC (7) | 660 J5K (H) | 1210 P9D (E) |
| 120 JPJ (U) | 670 XLM (4) | 1220 WX6 (G) |
| 130 07O (P) | 680 JYM (W) | 1230 VRK (C) |
| 140 EHO (V) | 690 K3M (4) | 1240 DFN (E) |
| 150 5F5 (V) | 700 XAS (M) | 1250 SVO (N) |
| 160 39T (X) | 710 HYE (V) | 1260 PTH (Q) |
| 170 3CT (X) | 720 V2K (D) | 1270 LAE (5) |
| 180 3QT (S) | 730 VJJ (5) | 1280 QG2 (K) |
| 190 Y92 (C) | 740 V46 (F) | 1290 1A4 (R) |
| 200 XXC (C) | 750 Y9Q (U) | 1300 XPJ (O) |
| 210 3S5 (S) | 760 Y2G (M) | 1310 XMF (S) |
| 220 03T (2) | 770 UHM (R) | 1320 1MF (1) |
| 230 ACJ (M) | 780 VR5 (P) | 1330 4VV (7) |
| 240 9DN (8) | 790 D2Q (9) | 1340 8GU (L) |
| 250 APK (V) | 800 UR6 (D) | 1350 DMN (N) |
| 260 K91 (8) | 810 AH2 (5) | 1360 T2O (E) |
| 270 QY8 (T) | 820 XAA (O) | 1370 AF6 (V) |
| 280 DUT (L) | 830 D8O (6) | 1380 4TW (M) |
| 290 HOT (G) | 840 PMR (V) | 1390 7SK (S) |
| 300 GSG (A) | 850 Y18 (C) | 1400 5CE (W) |
| 310 JHD (G) | 860 MH3 (D) | 1410 DTH (P) |
| 320 RF7 (4) | 870 6FL (D) | 1420 DKN (K) |
| 330 D7U (9) | 880 182 (9) | 1430 Y6T (L) |
| 340 PUL (S) | 890 9YM (W) | 1440 GXW (Y) |
| 350 1M5 (E) | 900 NA8 (X) | 1450 1DP (X) |
| 360 DLU (2) | 910 WW6 (3) | 1460 EA4 (P) |
| 370 THG (7) | 920 PF5 (6) | 1470 485 (E) |
| 380 8J2 (J) | 930 D46 (L) | 1480 DL6 (D) |
| 390 5C6 (5) | 940 Q39 (7) | 1490 Y8D (5) |
| 400 42R (F) | 950 JM8 (X) | 1500 HY9 (F) |
| 410 M3P (9) | 960 DPE (K) | 1510 PPV (N) |
| 420 Q9R (O) | 970 MN5 (7) | 1520 8W7 (N) |
| 430 7J1 (U) | 980 A37 (M) | 1530 CDE (1) |
| 440 HS1 (P) | 990 E01 (P) | 1540 UPU (3) |
| 450 M4H (Q) | 1000 6HV (C) | 1550 08N (7) |
| 460 MKD (8) | 1010 TGE (X) | 1560 V9Y (N) |
| 470 8UP (4) | 1020 5VQ (L) | 1570 EON (H) |
| 480 ASP (5) | 1030 D4N (N) | 1580 QTE (M) |
| 490 AJP (5) | 1040 607 (9) | 1590 QYX (D) |
| 500 A3Q (1) | 1050 657 (N) | 1600 RFT (U) |
| 510 A9Q (4) | 1060 66Q (S) | 1610 93C (Q) |
| 520 QWC (H) | 1070 DDN (X) | 1620 8W6 (C) |
| 530 D7W (U) | 1080 QAG (Y) | 1630 H5H (Q) |
| 540 L8L (E) | 1090 VPM (K) | 1640 WAK (H) |
| 550 V6G (6) | 1100 MA5 (N) | |

```
KE 710,PEEK(710)+1:POKE 764,255
1160 IF A=58 AND PEEK(710)>2 THEN POKE
 710,PEEK(710)-1:POKE 764,255
1170 IF A=45 AND PEEK(711)<255 THEN PO
KE 711,PEEK(711)+1:POKE 764,255
1180 IF A=61 AND PEEK(711)>2 THEN POKE
 711,PEEK(711)-1:POKE 764,255
1190 IF A=11 AND PEEK(708)<255 THEN PO
KE 708,PEEK(708)+1:POKE 764,255
1200 IF A=1 AND PEEK(708)>2 THEN POKE
708,PEEK(708)-1:POKE 764,255
1210 GOTO 1090
1220 FOR Q=1 TO 4:COL(Q)=PEEK(707+Q)-2
:NEXT Q:POKE 704,COL(CL)
1230 RETURN
1240 REM LOAD
1250 GOSUB 1320
1260 POSITION 0,0:? #6;"[illegible] NAME:
  ":GOSUB 1430
1270 TRAP 1310:OPEN #1,4,0,FL$
1280 FOR Q1=0 TO 11:FOR Q2=0 TO 19:GET
 #1,A:COLOR A:PLOT Q2,Q1:NEXT Q2:NEXT
Q1
1290 FOR T=708 TO 711:GET #1,Q2:POKE T
,Q2:NEXT T:GET #1,Q2:POKE 704,Q2
1300 CLOSE #1:GOSUB 1220:RETURN
1310 TRAP OFF:GOSUB 1330:RETURN
1320 FOR OP=1 TO 20:LOCATE OP-1,0,ZX:R
M(OP)=ZX:NEXT OP:GOTO 1340
1330 FOR OP=1 TO 20:COLOR RM(OP):PLOT
OP-1,0:NEXT OP
1340 POKE 16,64:POKE 53774,64:RETURN
1350 REM SAVE
1360 GOSUB 1320
1370 POSITION 0,0:? #6;"[illegible] NAME:
  ":GOSUB 1430:GOSUB 1330
1380 OPEN #1,8,0,FL$
1390 FOR Q1=0 TO 11:FOR Q2=0 TO 19:LOC
ATE Q2,Q1,Q3:PUT #1,Q3:NEXT Q2:NEXT Q1
1400 FOR T=708 TO 711:PUT #1,PEEK(T):N
EXT T:PUT #1,PEEK(704)
1410 CLOSE #1:RETURN
1420 REM GET FILE NAME
1430 CLOSE #1:OPEN #1,4,0,"K:":PO=7
1440 GET #1,KL:IF KL=27 THEN POP :POP
:GOSUB 1330:GOTO 130
1450 POKE 16,64:POKE 53774,64:POKE 694
,0:POKE 702,64
1460 IF KL=155 THEN 1520
1470 IF KL=126 AND PO>7 THEN PO=PO-1:P
OSITION PO,0:? #6;" ":GOTO 1440
1480 IF PO>14 THEN 1440
1490 IF KL<65 OR KL>90 THEN 1440
1500 POSITION PO,0:? #6;CHR$(KL):PO=PO
+1
1510 GOTO 1440
1520 LOOP=6:FL$="D:"
1530 LOOP=LOOP+1:LOCATE LOOP,0,LT:IF L
T=32 THEN 1550
1540 FL$(LOOP-4,LOOP-4)=CHR$(LT):GOTO
1530
1550 FL$(LOOP-4,LOOP-1)=".CPC"
1560 CLOSE #1:POKE 16,64:POKE 53774,64
:RETURN
1570 REM TITLE PAGE
1580 POSITION 5,0:? #6;"[illegible]":POK
E 16,64:POKE 53774,64
1590 POSITION 4,2:? #6;"[illegible]"
1600 POSITION 8,4:? #6;"B Y"
1610 POSITION 3,6:? #6;"m a t t h e w"
1620 POSITION 4,8:? #6;"a u g i e r"
1630 POSITION 4,11:? #6;"PLEASE WAIT"
1640 RETURN
```

MicroLink
in association with
TELECOM GOLD
NEWSLETTER

# NOW FT BUSINESS REPORTS GO ON LINE

THE Financial Times Business Reports database is now part of Profile Information – the online service formerly known as Datasolve International – which is obtainable through MicroLink. It is the first venture between Profile and its new owner, The Financial Times, which recently acquired the company from Datasolve for £10 million.

Based on the highly-regarded FT newsletter service, the new database provides the full text of 22 regular newsletters covering technology, business, finance, media and energy.

Profile is best known to MicroLink subscribers for its World Reporter database containing the complete text of more than 25 worldwide newspapers, periodicals and news services.

As well as the world's leading business newspapers – the Financial Times and the Wall Street Journal – Profile also offers publications such as the Washington Post, the Guardian and the Daily and Sunday Telegraph.

Several major international news services such as Associated Press and Asahi are included, along with a wide range of authoritative sources on international politics, business, markets and finance.

Profile also offers access to McCarthy Online, which contains full text articles selected for their relevance to business and commerce from more than 60 of the world's top business publications.

## *It's the Tory line*

*TORY politicians and party workers all over the country are being urged to join MicroLink.*

*The Conservative Computer Forum, an organisation formed 10 years ago to promote computing among party members, is behind the campaign.*

*Committee member Warwick Childs said: "Perhaps the greatest potential a computer can offer – electronic communications – has up to now been sadly neglected in the Conservative Party. In this respect we are well behind the other main political parties.*

*"At present we have something approaching 200 CCF members – think what an advantage it would be if they were able to provide a nation-wide electronic mail network for the benefit of their constituencies.*

*"These people are our prime targets for linking together electronically. Eventually we hope to see all constituencies, MPs, party officials and offices on the MicroLink system".*

## Software speed-up

IT's now quicker and easier to use the massive MicroLink library of free computer software.

With the number of titles available for downloading fast approaching the 600 mark, subscribers were in danger of experiencing difficulty locating specific programs. As a result MicroLink has completely redesigned the telesoftware database to speed up the process of selection.

Users can now choose from a menu a complete database of program titles suitable for their own particular make of computer.

## The social side wins

MICROLINK subscriber Nigel Inwood temporarily abandoned a career in accountancy and law to help his parents open a business. Fourteen years later he very much doubts he'll ever return to the office.

The business his family took over was Judges Bakery, in the High Street of Hastings old town near the harbour.

With the addition of a restaurant, it became the only bakery to be listed in tourist guides such as Egon Ronay and the Good Food Directory.

"I'm on MicroLink for pleasure, because computing is my hobby", said Nigel Inwood. "Despite its international fame this is still a one-shop business – my Email communications are more likely to be social than official.

"I chose MicroLink because it offered more interesting and entertaining features than the other systems available".

## Third World connection

**A LEADING independent authority on conditions in Third World countries has joined MicroLink to improve its international communications.**

**The Overseas Development Institute was formed nearly 30 years ago to study and monitor economic and agricultural development abroad.**

**At any one time it has as many as 20 research projects underway in different parts of the world. As well as publishing vital information about conditions in various countries, the ODI also tries to influence the decisions of policy makers around the world.**

**"We have an ongoing need to communicate with researchers and other institutions worldwide", said ODI spokesman Peter Gee.**

**"As part of a project to improve communications we are looking at electronic messaging, and MicroLink is as good a base as any to start with its excellent Email and telex facilities".**

YOUR chance to join MicroLink – Page 6

# Your HINTS & TIPS

## Escape from Traam

IF you are having trouble with this superb science fiction adventure don't panic – help is at hand. When you crash your ship, look at it, get the nylon rope, push the ship and get the laser.

Go South and tie the rope to the bush then climb up and talk to the alien warrior – you have to talk to him twice. Now go South, then West into the dark cave and once you're inside it keep moving until you bump into an object – the rest is up to you. – **Patrick Brown, Newton, Leicestershire.**

## Donkey Kong Junior

WHEN the game has loaded press Start. Then press shift and hold it down as you type the word BOOGA. If you now press K you will never be killed as you play the game and if you press S you will be able to skip levels. – **George Boyle, Livingston, West Lothian.**

## Spiderman

HERE is the complete solution to this addictive adventure:

Walk along the walls, go West, look in the crib and take the formula. Now look in the crib again before taking the first gem. Go N, N and drop the gem followed by the formula then go S, S, E and open the doors.

Enter the shaft and have a look around, especially in the niche, and get the gem. Now go up the shaft and have a look around in another niche before getting the gem. Go up again and search around for another gem. Push the shaft and go up, take another look before getting the next gem.

You are now in the Penthouse, so lower the thermostat twice before reading it then open the desk and get the sixth gem. Take the painting and pull it, then get the paper and drop the picture. Go back into the shaft and go D, D, D, W, W, N, N and drop a gem six times.

Go S, E and take the aquarium. Go W, S, E and enter the shaft again. Go U, U, U, W and raise the temperature. Empty the aquarium and take the gem, then drop the aquarium. Lower the temperature, take the desk and couch and go back into the shaft.

Go D, D, D, W, W, N, N and drop a gem then go S. Next move E and take the statue and go W, S, E. Go into the shaft, climb up and go W where you drop the statue, couch and desk.

Enter the shaft again, go U, W, W and close your eyes. Go W then push the knob, open your eyes and get the gem. Type RUN and go E, S to get the acid and calcium, then go S, S and get the other chemicals. Go N, N and mix the chemicals first and then get the calcium – then call.

Go S, S and take the chemicals before going N, N, now make a web. Drop the paper then go S, E and enter the shaft: Go D, D, W, W then South before dropping the calcium. Have a look in the corners and take the gem you find there, then go N, N, N and drop the gem twice.

Go S and shoot your web at the gem before you get it, then go N and drop the gem before going S, S, S. Take the corners and go N, E to get to the roof. Open the mesh and then drop it, go down the duct and get the gem.

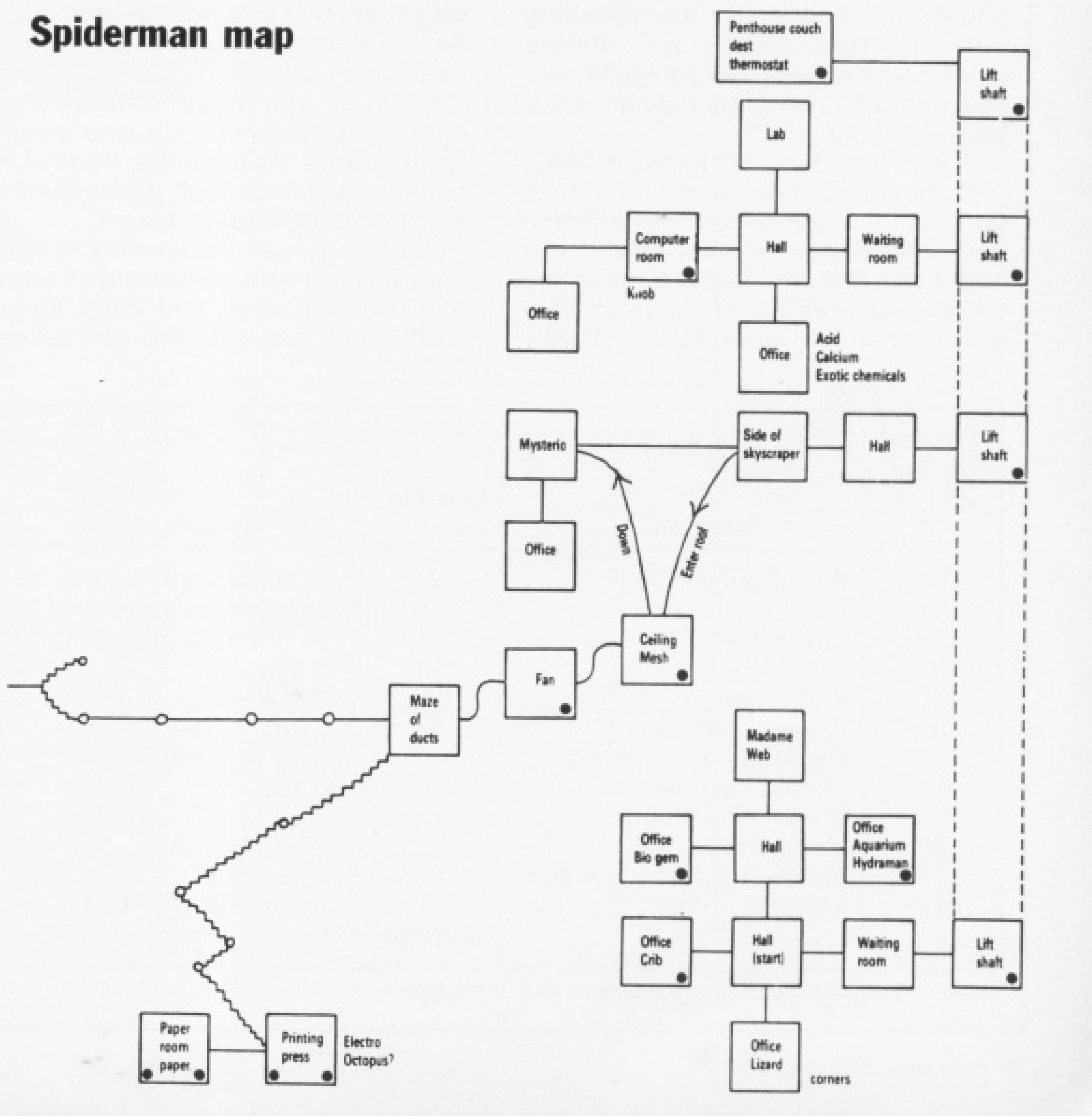
Examine the fan before shooting your web at the button five times, then enter the fan to take the gem before going D, D, D, D, D. Get octo and hit electro then go W and read the dial – it should say 957. Go E, U, U, U, U, U, enter the fan, go down and feel N before you take the gem.

Go S and then feel S and take the gem before going N, E, E. Enter the shaft and go D, W, W, N, N so you can drop the gem seven times. Go S, S, E and enter the shaft before going U, U, W, W, W and type RUN.

Go E, E, enter the shaft, then go D, W, W and enter the roof. Now enter the duct then the fan before going D, D, D, D, D and take the newspaper. Open it and take the gem. Go U, U, U, U, U and enter the fan before going D, D, E, E so you can enter the shaft.

Go D, W, W, N, N and drop the gem – now ask for your score and it will print MICAH 100% – you have just finished the game. – **Lee Harding, Bradford, West Yorkshire.**

### Spiderman map



# Customising the default screen

## KEN BREARLY gives you a superb autoboot program that could brighten up your Atari

**HAVE you reached the stage in your programming career when a standard blue-and-white screen no longer fills you with inspiration? Perhaps you've envied other makes of computer which use different colours or formats for their programming screens. Or maybe you just want to give your loveable old Atari a face-lift, and impress your friends with its new customised appearance.**

If so, this autoboot program is for you. It lets you override the operating system so that whenever you switch on, or press Reset, a different screen layout with lots of new features appears instead of the boring old blue one.

What new features? Well, for starters the new screen can be any colour you like, with or without a border, and the text can be brighter or dimmer than usual. The left and right margins can be set at any positions you choose – perhaps to give balanced margins at either side, rather than the standard right-heavy effect.

The cursor can be adjusted so that it zips around at up to four times its normal speed, while still allowing precise single-step positioning and without affecting the auto-repeat on any other keys. You can also have it flashing on and off at whatever rate you choose and, unlike most flashing cursors, this one stays visible whenever it moves – so you will never lose track of it no matter how quickly it whizzes about.

If you like the BBC Micro display, with thin lines under each line of text, you can incorporate a similar effect in your new custom screen. And, if you adopt this feature, you can move the whole text area up or down to centralise it, should your TV be slightly out of adjustment.

A feature unique to the Atari is the attract mode colour rotation – that is, when you don't touch the keyboard for about 10 minutes, the screen colours will start to change randomly every few seconds. This can be very irritating when you're programming, so the autoboot routine gives you the option of switching it off.

There's even an extra feature for advanced programmers, which allows you to reserve a safe area of memory below the *MEMLO* pointer. This area can be used to store display lists, character sets, player missile graphics tables, machine code routines or any other data that you want to keep out of Basic's clutches but which won't fit on page six.

Because the routine is written entirely in machine code, and installs itself before Basic takes control, it behaves just as though it were part of the built-in operating system.

You can load, save and modify your Basic programs without affecting it in the slightest, and even typing NEW won't erase it. The new screen will disappear, of course, when you select any new graphics mode, and you can change the colours using SETCOLOR in the usual way. But if you press Reset, everything will be automatically restored to its former glory.

The machine code is quite complex, and would take too long to discuss in detail, so we'll just look at the Basic versions and how to customise them.

Program I is for disc users. When you run it, it creates an AUTORUN.SYS file containing all the routines and data for your new customised screen. Make sure, though, that the disc you're saving it to contains a copy of Dos, and doesn't contain an existing AUTORUN.SYS file that you want to keep.

Program II is similar, but creates an autoboot cassette file. Insert a blank, rewound cassette, Run the program and proceed as for CSAVE when you hear the familiar double beep. To get the new screen routine installed and working, you now follow the normal boot procedure.

With a disc drive, simply insert the disc containing your AUTORUN.SYS file and switch the computer on. To load the cassette version, insert the fully-rewound autoboot cassette, switch power on while holding down the Start key, then follow the usual CLOAD procedure.

If you keep the routine in its present form, you will get a green screen with blue-grey lines under each line of text, margins set at 1 and 38, a cursor which flashes twice per second and moves twice as fast as normal, and no attract mode colour rotation. The disc version also gives you a protected area of ram between addresses 7991 and 9216, while the cassette version gives you 2092 to 3072 – see Figure I.

All these parameters can be altered by changing a few numbers in either program, then making a new autoboot file containing the customised data.

| Numbers on line 230 or 300 | Function | Existing number | Permissible range |
|---|---|---|---|
| 1st | Background colour | 194 | Even numbers from 0 to 254 |
| 2nd | Border colour | 176 | Even numbers from 0 to 254 |
| 3rd | Character brightness | 10 | Even numbers from 0 to 14 |
| 4th | Left margin | 1 | 0 to 38 |
| 5th | Right margin | 38 | 1 to 39 |
| 6th | Attract mode on/off | 0 | 0 = off, 1 = on |
| 7th | Flashing cursor on/off | 1 | 0 = off, 1 = on |
| 8th | Cursor flash rate | 14 | 1 to 255 |
| 9th | Cursor movement rate | 2 | 1 to 6 |
| 10th | Underlines on/off | 1 | 0 = off, 1 = on |
| 11th | *MEMLO* pointer, low byte | 0 | Best left at 0 |
| 12th | *MEMLO* pointer, high byte | 36 (disc)<br>12 (cass) | Minimum 32 (see text)<br>Minimum 9 (see text) |

*Table I: The possible program changes and their effect*

It's quite easy to do.

Look at line 230 in Program I or line 300 in program II. Each of those 12 numbers controls some aspect of the new default screen. For example, the first three – 194, 176, and 10 – affect screen colours. Table I shows what each number does, together with the range of numbers you can use as alternatives to customise the screen.

You can experiment with most of these numbers while your new screen is in place. First install the autoboot file, to get the green screen and so on, then experiment by POKEing different numbers into the control registers, as follows:

**Background colour**: POKE 710 with any even number from 0 to 254.

**Border colour**: POKE 712 with any even number from 0 to 254. If you do not want a visible border, make it the same colour as the background.

**Character brightness**: POKE 709 with any even number from 0 to 14. If you accidentally make the text invisible against the background, just press Reset.

**Left margin**: POKE 82 with any number from 0 to 38.

**Right margin**: POKE 83 with any number from 1 to 39.

**Colour rotation**: POKE 7680 (disc) or 1805 (cassette) with 0 to cancel the attract mode colour rotation, or 1 to enable it.

**Flashing cursor**: POKE 7681 (disc) or 1806 (cassette) with 0 to stop the flashing or 1 to start it again.

**Cursor flash rate**: POKE 7682 (disc) or 1807 (cassette) with any number from 1 to 255. The higher the number, the slower the flash rate.

**Cursor movement rate**: POKE 7683 (disc) or 1808 (cassette) with any number from 1 to 6. Numbers above 6 will not slow the cursor down any further.

**Text up/down movement**: POKE 7687 and/or 7688 (disc) or 1812/1813 (cassette) with 0, 16, 32, 48, 64, 80, 96 or 112. These pokes will have no effect unless the thin lines are present on screen.

**Underlining**: POKE 7988 (disc) or 2089 (cassette) with 0 to turn the lines off, or 1 to turn them on, then press Reset.

The one parameter which you cannot change in this way is the *MEMLO* pointer. It can be altered only by changing the last two numbers in line 230 or line 300 – see Table I – and

**Turn to Page 54 ►**

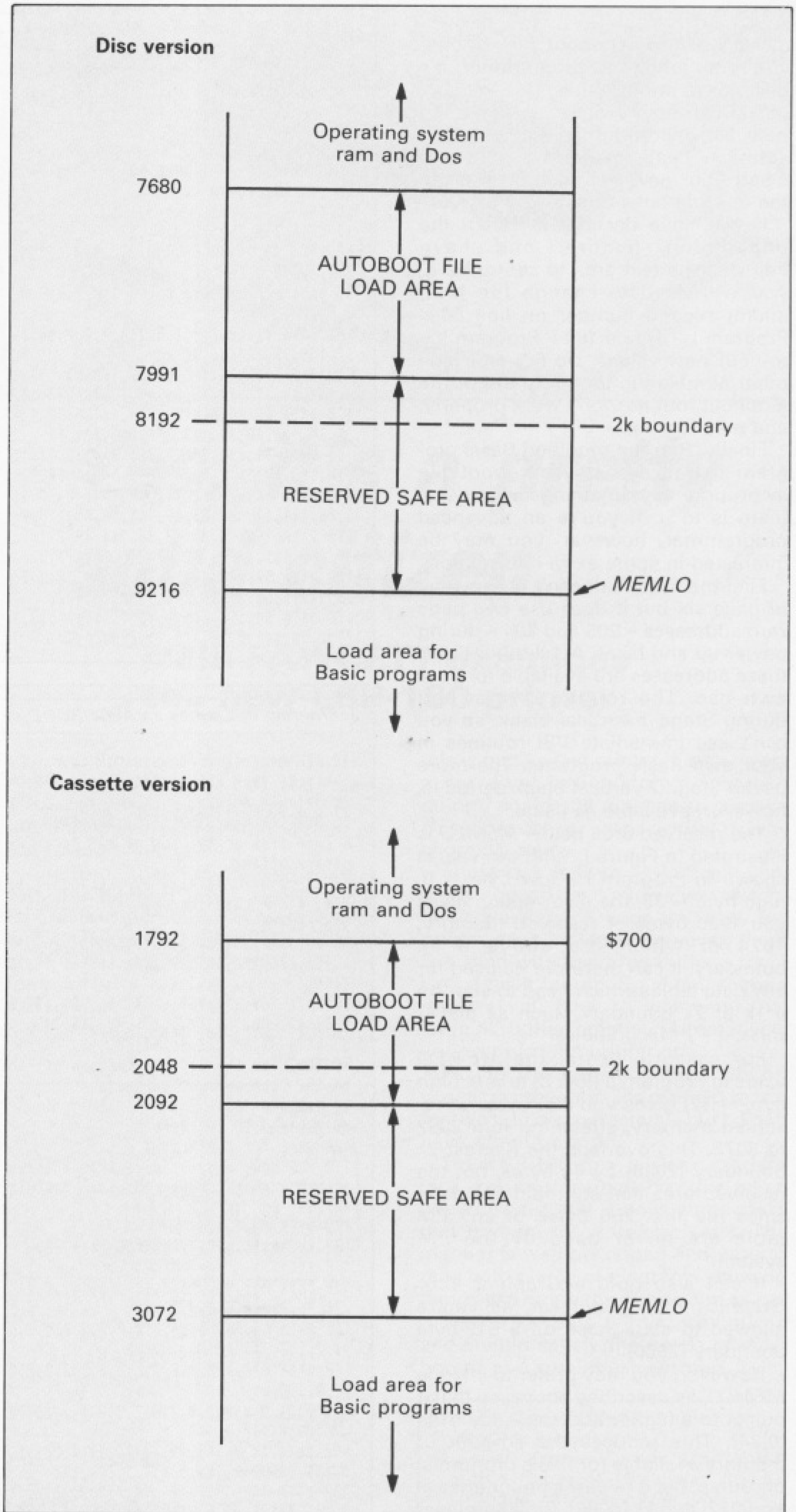



*Figure I: Memory maps*

◀ *From Page 53*

making a new autoboot file. Unless you're an advanced programmer, it's best not to attempt this.

You can now proceed to make the new file, incorporating your chosen settings. Load Program I or II and insert your new numbers in place of the existing ones on line 230 or 300.

If you have decided to retain the underlining feature, and have adjusted the text area to centralise it, you will need to change the first, and/or second number on line 80 – Program I – or line 160 – Program II – to your new values. Do not alter any other numbers in the program, or the autoboot routine won't work properly, and may lock up.

Finally, Run the modified Basic program to make a new autoboot file incorporating your changes. That's all there is to it. If you're an advanced programmer, however, you may be interested in some extra information.

First the routine doesn't occupy any of page six but it does use two page zero addresses – 203 and 204 – during power-up and reset. At all other times these addresses are available for your own use. The routine is executed during Stage 1 vertical blank, so you can't use Immediate VBI routines in your own Basic programs. The more useful Stage 2 vertical blank period is, however, available as usual.

The reserved area below *MEMLO* is illustrated in Figure I. With the values shown in Program I – low byte = 0, high byte = 36, the disc version gives you 1225 bytes of reserved memory, 1024 of which are above a 2k boundary. It can therefore be used for any data tables which need to start on a 1k or 2k boundary, such as player missile – PM – graphics.

For cassette users, the *MEMLO* value in Program II (low byte = 0, high byte = 12) gives you 980 bytes of reserved memory, stretching fom 2092 to 3072. This overlaps the nearest 2k boundary (2048) by 44 bytes, but the reserved area can still hold PM data, since the first 256 bytes of any PM table are never used by the PM system.

It can also hold a Graphics 1 or Graphics 2 character set, as you're allowed to start these on a 512-byte boundary (2560).

However, you may prefer to change *MEMLO*, as described above, so that it points to a higher address – say 6144 (0,24). This reduces the amount of memory available for Basic programs, of course, but it releases boundaries at 1k (3072) and 2k (4096), for your player missile data or character sets.

*Program I: Creates an AUTORUN.SYS disc file*

```
10 REM Program 1: Creates an AUTORUN.S
YS disc file which will install the ne
w default screen.
20 TRAP 60
30 OPEN #1,8,0,"D:AUTORUN.SYS"
40 READ D:IF D=-1 THEN 60
50 PUT #1,D:GOTO 40
60 END
70 DATA 255,255,7,30,54,31
80 DATA 48,16,80,66,0,0,0,2,0,2,0,2,0,
2,0,2,0,2,0,2
90 DATA 0,2,0,2,0,2,0,2,0,2,0,2,0,2,0,
2,0,2,0,2
100 DATA 0,2,0,2,0,2,0,2,0,2,0,2,65,7,
30,165,12,141,84,30
110 DATA 165,13,141,85,30,169,83,133,1
2,169,30,133,13,76,86,30,32,164,30,162
120 DATA 0,160,0,142,5,30,142,6,30,174
,6,30,189,19,31,133,203,232,189,19
130 DATA 31,133,204,232,142,6,30,174,5
,30,189,43,31,145,203,232,142,5,30,224
140 DATA 12,208,222,173,4,30,240,20,16
5,88,141,11,30,165,89,141,12,30,169,7
150 DATA 141,48,2,169,30,141,49,2,162,
30,160,165,169,6,32,92,228,96,173,0
160 DATA 30,208,2,133,77,173,1,30,240,
25,173,5,30,240,6,206,5,30,76,202
170 DATA 30,173,243,2,73,2,141,243,2,1
73,2,30,141,5,30,173,15,210,41,4
180 DATA 208,53,169,2,141,243,2,173,1,
30,9,128,141,1,30,173,9,210,201,142
190 DATA 240,12,201,143,240,8,201,135,
240,4,201,134,208,31,173,43,2,201,32,1
76
200 DATA 24,205,3,30,144,19,173,3,30,1
41,43,2,76,16,31,173,1,30,16,5
210 DATA 41,127,141,1,30,76,95,228,198
,2,200,2,197,2,82,0,83,0,0,30
220 DATA 1,30,2,30,3,30,4,30,231,2,232
,2
230 DATA 194,176,10,1,38,0,1,14,2,1,0,
36
240 DATA 224,2,225,2,62,30,_1
```

**Get it right!**

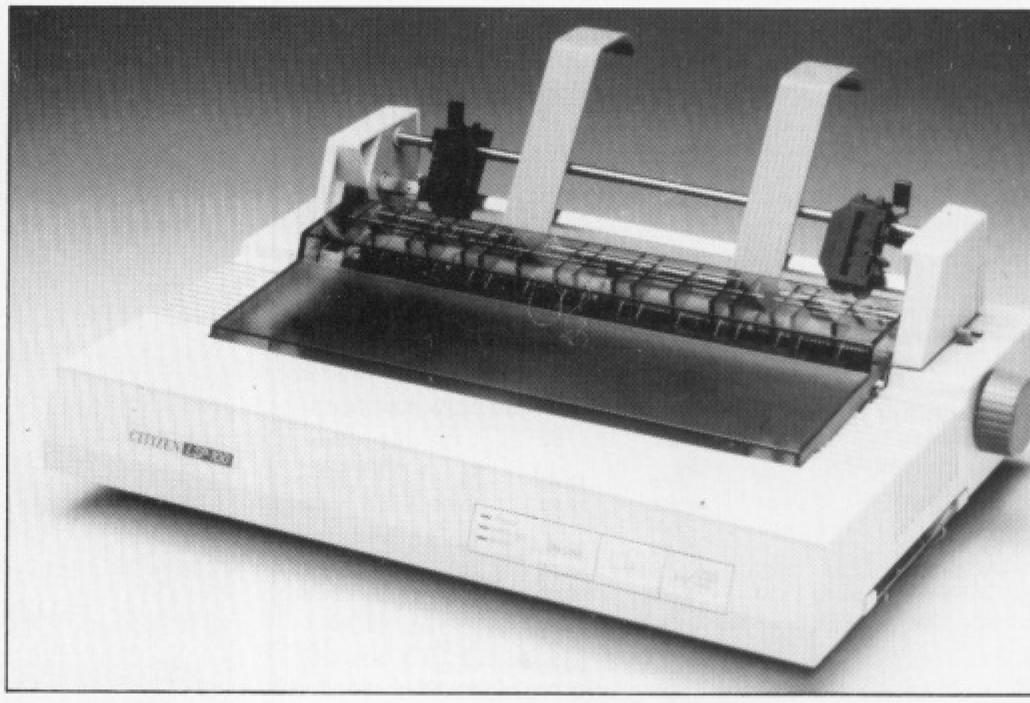
| | | |
|---|---|---|
| 10 CP1 (Y) | 90 565 (5) | 170 E6W (R) |
| 20 KVH (Q) | 100 N7K (R) | 180 HME (4) |
| 30 RF6 (P) | 110 TUT (D) | 190 S2F (E) |
| 40 9FU (W) | 120 DQH (8) | 200 DEK (R) |
| 50 42K (5) | 130 SU9 (V) | 210 ECF (V) |
| 60 D2P (E) | 140 QLD (J) | 220 UM1 (U) |
| 70 ATC (M) | 150 GK1 (U) | 230 V6T (8) |
| 80 HU4 (K) | 160 FH7 (C) | 240 H9N (J) |

*Program II: Creates an AUTOBOOT cassette file*

```
10 REM Program 2: Creates an autoboot
cassette file which will install the n
ew default screen.
20 BFR=(PEEK(106)-24)*256:REM reserve
a safe area at the top of RAM as a tem
porary buffer
30 FOR X=0 TO 46:READ D:POKE 1536+X,D:
NEXT X:REM Load the new SAVE routine i
nto page 6
40 DATA 104,104,133,204,104,133,203,10
4,133,206,104,133,205,162,16,169,11,15
7,66,3
50 DATA 165,203,157,68,3,165,204,157,6
9,3,165,205,157,72,3,165,206,157,73,3
60 DATA 32,86,228,96,67,58,155
70 REM Load the program temporarily in
to the reserved buffer space
80 RESTORE 150
90 FOR X=0 TO 209:READ D
100 POKE BFR+X,D:NEXT X
110 REM Now read the data from the tem
porary buffer into an Autoboot cassett
e file
120 OPEN #1,8,128,"C:"
130 X=USR(1536,BFR,PEEK(BFR+1)*128)
140 END
150 DATA 0,3,0,7,75,7,169,60,141,2,211
,24,96,0,0,0,0,0,0,0
160 DATA 48,16,80,66,0,0,0,2,0,2,0,2,0
,2,0,2,0,2,0,2
170 DATA 0,2,0,2,0,2,0,2,0,2,0,2,0,2,0
,2,0,2,0,2
180 DATA 0,2,0,2,0,2,0,2,0,2,0,2,65,20
,7,162,0,160,0,142
190 DATA 18,7,142,19,7,174,19,7,189,8,
8,133,203,232,189,8,8,133,204,232
200 DATA 142,19,7,174,18,7,189,32,8,14
5,203,232,142,18,7,224,12,208,222,173
210 DATA 17,7,240,20,165,88,141,24,7,1
65,89,141,25,7,169,20,141,48,2,169
220 DATA 7,141,49,2,162,7,160,154,169,
6,32,92,228,96,173,13,7,208,2,133
230 DATA 77,173,14,7,240,25,173,18,7,2
40,6,206,18,7,76,191,7,173,243,2
240 DATA 73,2,141,243,2,173,15,7,141,1
8,7,173,15,210,41,4,208,53,169,2
250 DATA 141,243,2,173,14,7,9,128,141,
14,7,173,9,210,201,142,240,12,201,143
260 DATA 240,8,201,135,240,4,201,134,2
08,31,173,43,2,20 270 DATA 144,19,173,
16,7,141,43,2,76,5,8,173,14,7,16,5,41,
127,141,14
280 DATA 7,76,95,228,198,2,200,2,197,2
,82,0,83,0,13,7,14,7,15,7
290 DATA 16,7,17,7,231,2,232,2
300 DATA 194,176,10,1,38,0,1,14,2,1,0,
12
```

**Get it right!**

| | | |
|---|---|---|
| 10 CP1 (Y) | 120 1V1 (R) | 230 H39 (M) |
| 20 Q2U (9) | 130 3V9 (M) | 240 FJL (L) |
| 30 VMO (7) | 140 DK1 (O) | 250 QSJ (X) |
| 40 OFW (3) | 150 U4D (Y) | 260 QFK (M) |
| 50 RF2 (1) | 160 L1Q (T) | 270 DTT (5) |
| 60 J7K (U) | 170 7CY (7) | 280 3LR (M) |
| 70 CP7 (2) | 180 N4S (D) | 290 KE2 (Y) |
| 80 T8H (E) | 190 H5H (5) | 300 UTC (D) |
| 90 98G (6) | 200 RD3 (K) | |
| 100 HO1 (G) | 210 HTM (M) | |
| 110 CYS (1) | 220 D3G (X) | |



# Yes, it's a pretty solid citizen

## NEIL FAWCETT examines the new LSP-100 printer

**THE LSP-100 bi-directional dot matrix printer is Citizen's latest addition to an already impressive range of products. As with most printers, you have the option of friction or tractor feed and this can be selected easily by moving a lever on the top right of the casing.**

You also have the option to load paper from underneath the printer using a process called bottom-feeding (see Figure I). Loading paper this way can only be done when your printer is mounted on a stand. The tractor-feed mechanism must be attached to the printer and you must use continuous stationery. Loading paper is just like setting the tractor-feed up, except the paper comes from underneath.

The printer will connect to your micro via an Atari 850 interface box, but you will need to buy a lead to connect them – or a Centronics-to-Atari interface cable, which costs about £50.

On the front right side of the printer are three buttons controlling the online status, form feed and line feed. The printer must be brought offline before the feed buttons will work – rather annoying, but this is the case with several printers. Next comes a panel with three small lights – power, paper out and ready.

The DIP switches are easy to access: You simply switch the printer off and remove a cartridge-style interface located on the right of the printer as you look at it. You can then alter the switches to suit your micro. Instructions on how to do so are very well documented in the manual.

Now for the all-important question: Is it Epson compatible? The answer is yes, and it is also switchable to IBM-compatible, not that this will affect Atari owners.

Citizen says that the LSP-100 is an 80 column printer and the print head has nine pins which are used to give you a 9x9 matrix. When used in NLQ mode a double pass of the head allows the matrix to change to 17x17 and this gives you a wide variety of styles and typefaces.

The print speed is 150/175 characters per second (cps) at 10/12 cpi (characters per inch) in draft mode and 40 cps in NLQ mode. Now that is quite a mouthful, but it gives you an idea of the capabilities of this machine.

It is interesting to note that although this is quite a fast printer it is also very quiet. Even when doing a screen dump I could still manage to concentrate on other work while it was churning away.

There is a built-in 4k buffer – very useful indeed, as it allows you to continue working on your micro as the printer does its work. However, there is a snag with the large buffer – there isn't a flush button. So, if you make a mistake you have to wait until that large 4k buffer empties. Alternatively you can turn the printer off.

Fitting the cartridge type ribbon poses no problems. It's claimed to last for two million characters – but I didn't have time to test this.

The LSP-100 has a sleek modern look and is surprisingly compact when you consider that it does some tasks that printers twice its size can't. The manual is well presented and easy to read with plenty of diagrams showing things like fitting the ribbon and so on.

This is a superb printer, well priced and should satisfy the needs of most homes and small businessmen.

### Specifications

- **150/175 cps at 10/12 cpi in draft and 40 cps in NLQ**
- **Epson and IBM compatibility**
- **Parallel interface standard**
- **Tractor feed and friction feed**
- **4k buffer**
- **8 bit graphics capabilities**
- **Downloadable characters**
- **More than 400 print styles**
- **Automatic sheetfeeder available**
- **Bottom-feed paper loading option**

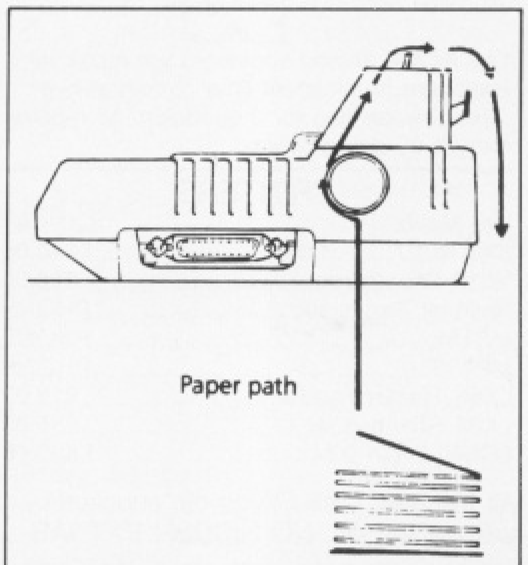



*Figure I: Loading the printer using bottom- feed*

*Product: Citizen LSP–100 printer*
*Price: £249 excluding VAT*
*Supplier: Citizen Europe Ltd, Wellington House, 4-10 Cowley Road, Uxbridge, Middlesex, UB8 2XW*
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| DS 96TPI FLIP SIDED | 7.00 | 14.00 | 22.00 | 38.00 | 8.00 |
| MIMIC FLIP SIDED DS 96TPI | 8.95 | 20.00 | 38.00 | 70.00 | 9.95 |
| MIMIC HIGH DENSITY 1.6meg | 23.00 | 52.00 | 100.00 | 180.00 | 24.00 |
| COLOURED – mix & match or all one colour | | | | | |
| SS 48TPI | 6.50 | 12.00 | 22.00 | 42.00 | 7.50 |
| DS 48TPI | 7.50 | 14.00 | 24.00 | 44.00 | 8.50 |
| DS 96TPI | 8.00 | 16.00 | 28.00 | 50.00 | 9.00 |

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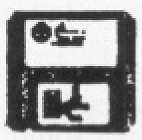
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# An American eye on the 8 bit scene

*I LIVE in Boston USA and I was in London for two weeks when I heard of the Atari User Christmas Show. Having owned an Atari 1200XL – which was once available in the US – for nearly three years, I naturally decided to attend.*

*I am a great fan of games software and boast a 1,200 program collection which includes 82 cartridges. In my two week visit I have been to many software outlets in the West End, but have discovered that Atari 8 bit computers are sadly not so well supported as others I could name.*

*This is a shame really, as they offer excellent graphics and superb sound facilities, which by far exceed the standards offered by other micros.*

*In the US, Atari 8 bit computers are now one of the most popular micros. With the arrival of the new XE, software houses have really been booming.*

*But it is not like this in Britain, so as I entered the Champagne Suite in*

**£10 LETTER**

*Novotel I had little hopes of enjoying myself. But, was I surprised!*

*Software here is just as good as that in the US – only it's more difficult to obtain. I had never even heard of titles like Phantom, International Karate and Arkanoid, but they proved to be excellent games.*

*I found business software here to be of a very high standard too. Overall I was very pleased with the software I bought – if only it was stocked by every software outlet in the UK.*

*But to the point of my letter – at the show I discovered Atari User. It is an excellent magazine, and much better than anything in the USA.*

*I bought all the back issues which were on display and look forward to some interesting reading and more projects like the speech synthesiser. Thank you Atari User, for making my visit worthwhile.*

*By the way, games freaks may be interested to hear of the games which are all the rage in the US on the Atari: Kung Fu Master, Rocky, Phoenix and World Cup Football – look out for them in Britain.* – **Z. Javed, Boston, USA.**

## Printer transformed

*I HAVE just returned from Saudi Arabia with an Epson RX80 printer that I bought out there.*

*The printer is 120 volts and I am at present using it with a voltage transformer. Can I convert it to 240 volts?* – **Nigel Potter, London.**

● It should be possible to convert your printer to 240 volts. Some transformers are multi-standard and require a link to be changed inside the printer.

If your printer contains a single voltage type, it will be necessary to replace it. Epson UK should be able to help you: The address is Epson UK, Dorland House, 388 High Road, Wembley, Middlesex HA9 6UH.

## No Ninja

*COULD you please tell me if the Last Ninja from System 3 will ever be available for Atari 8 bit computers? I have waited a long time but it has not come out yet.* – **Scott Howden, Stirling, Scotland.**

● At the moment the Last Ninja has not been released for the 8 bit Atari and it appears a conversion is unlikely to be forthcoming.

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## Faulty keyboard

*I BOUGHT my 800XL about two years ago from Currys and we had a few problems loading games. After a few weeks – and computers – we found one that worked and I've been happy with it until recently.*

*Everything was fine until about two months ago when the comma key started to stick and a continuous stream of them poured out. I ignored this as I didn't do much typing for a while, but when I did, none of the keys would work.*

*I could still load games, as the function keys worked, and after the beep the data recorder started automatically. If it's a major fault could you please recommend someone to repair it.* – **L. Stephenson Easington Coll, Co. Durham.**

● Your best course of action is to send your computer to a service engineer for repair. Here is the address of someone close to you who may be able to help: ISC Electronics, 12 Pirbright Grove, Hemlington, Middlesbrough, Cleveland TS8 9PB.

## Stopped on the red

*OCCASIONALLY the black background on my monitor display develops a pale green/yellow cast which sometimes lasts up to a minute.*

*Also the top of my print head doesn't work making the text difficult to read.* – **Michelle Nixon, Waddington, Lincoln.**

● The cast on the picture is due to an absence of a red signal. This could be a faulty lead or connector at the computer or monitor end. Alternatively it could be a problem inside the monitor circuit itself.

The print head fault can probably be rectified by cleaning or replacing it. Alternatively the Darlington driver – inside the printer – which controls the top solenoid of the head may have gone faulty and need replacing.

## Lighting up

*I WAS very interested in the disco light controller in the December 1987 issue of Atari User. I would like to know if it can be bought*

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*ready-built, and if so what is its price?*

*I am not electrically minded and don't know anyone who could build it for me, but I would like to put on a light show.* – **R. Hindhaugh, Ashington, Northumberland.**

● The disco lights are available ready-built from RH Design for £32.50 plus £1.50 postage and package. The company also sells some of the other gadgets featured in *Atari User* ready built.

The address is RH Design, Units 2 and 3, Stonefall Stables, Stonefall Avenue, Harrogate HG2 7NR.

## ATARI USER Mailbag

WE welcome letters from readers – about your experiences using the Atari micros, about tips you would like to pass on to other users . . . and about what you would like to see in future issues.

The address to write to is:

**Mailbag Editor**
**Atari User**
**Europa House**
**Adlington Park**
**Adlington**
**Macclesfield SK10 5NP**

## Printing screens

*I WOULD like to tell you that* Atari User *is really great and I buy it every month in my country – Israel. I have two questions and was wondering if you can help.*

*Can my dot matrix printer dump screens from games and pictures from adventures?*

*I can't find the game King's Quest for my Atari 800XL with 256k memory. Do you know where I could get this?* – **Eyal Levy, Moztkin, Israel.**

● As your computer stands it is very difficult to dump screens from adventure games. However, using something like the OS Controller card from Computerhouse it is possible.

The board is an internal modification to your micro and allows you control over the operating system. Their address is Computerhouse, 14 Romily Court, Landridge Road, Fulham, London SW6 4LL.

The King's Quest adventure game is only available on ST format in the UK. However if you write to Sierra On-Line Inc. in America you will be able to obtain full details of the products for the 8 bit. Their address is Sierra On-Line Inc., Coarse Gold, California, CA 93614, USA.

## Software shortage

*WHY is it that 8 bit Atari owners always get left out when games like Out Run are released? I have written to many of the major software companies, but to no avail.*

*If games like Out Run and many others – too numerous to mention – were released they would be bestsellers.*

*There is a massive user base for Atari 8 bit computers out there, so why are we still ignored?* – **Martin Osborne, West Wimbledon, London.**

● Do any of our other readers have problems obtaining software? Write in to us, we'd like to hear from you.

## A sound investment

*I RECENTLY bought a second-hand 800XL and 1050 disc drive, but there were no manuals. I am interested in music and programming, so I tried to produce some tunes on my micro.*

*A friend explained the SOUND statement to me, but my problems arose when I tried to convert numbers for the pitch value into musical notes. Can you please help me?* – **Denise Skelton, Cleveland.**

● The panel below shows a range of musical notes and their numeric equivalents. There's also a short program to play a musical scale and demonstrate the SOUND statement in use.

| | | |
|---|---|---|
| High notes | C | 29 |
| | B | 31 |
| | A# or B*b* | 33 |
| | A | 35 |
| | G# or A*b* | 37 |
| | G | 40 |
| | F# or G*b* | 42 |
| | F | 45 |
| | E | 47 |
| | D# or E | 50 |
| | D | 53 |
| | C# or D*b* | 57 |
| | C | 60 |
| | B | 64 |
| | A# or B | 68 |
| | A | 72 |
| | G# or A*b* | 76 |
| | G | 81 |
| | F# or G*b* | 85 |
| | F | 91 |
| | E | 96 |
| | D# or E*b* | 102 |
| | D | 108 |
| | C# or D*b* | 114 |
| Middle C | C | 121 |
| | B | 128 |
| | A# or B*b* | 136 |
| | A | 144 |
| | G# or A*b* | 153 |
| | G | 162 |
| | F# or G*b* | 173 |
| | F | 182 |
| Low notes | D | 193 |
| | D# or B*b* | 204 |
| | D | 217 |
| | C# or D*b* | 230 |
| | C | 243 |

*Figure I: Pitch values and their relative musical note*

```
10 REM MUSICAL SCALES PROGRAM
20 READ N
30 IF N=-1 THEN END
40 SOUND 0,N,10,10
50 FOR DELAY=1 TO 500:NEXT DELAY
60 GOTO 20
70 DATA 29,31,35,40,45,47,53,60,64,72
80 DATA 81,91,96,108,121,128,144,162
90 DATA 182,193,217,243,-1
```

## Topical translations

*FOLLOWING the amusing article on Computer Speak in the November issue of* Atari User, *here are some more in a similar vein.* – **P Bullin, Hucknall, Notts.**

Apple...*grows on a tree.*
Brand new...*at last someone has found a use for it.*
Byte...*a hungry computer programmer.*
C...*a letter after B.*
CMOS...*moss that grows on the sea bed.*
Data...*asking your girlfriend out for a drink.*
Data bus...*mobile library.*
Dos...*a layabout.*
Designed by a computer...*no one will take the blame.*
Forth...*a bridge.*
IC...*rough weather for ships.*
Latest technology...*we put it in a new case.*
One meg bus...*expensive double decker.*
Mega byte...*banquet for computer people.*
Monitor...*school milk distributor.*
Nibble...*not-so-hungry computer programmer.*
Unrepeatable offer...*hurry up, we're going bankrupt.*
Serial input...*cornflakes for breakfast.*
Micro chips...*small portions of fried sliced computer.*

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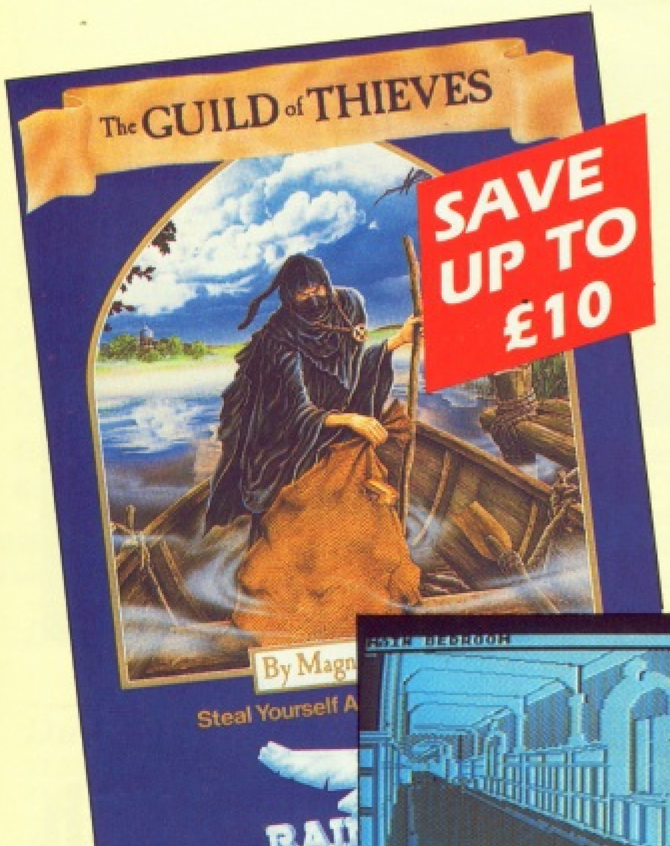
This superb package includes a 44-page novel and a cryptic help section.

❛The program took three man years of programming time to produce – and it shows. The Pawn is the stuff from which cults are made.❜

*– Anthony Ginn, Atari User, May 1986*




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❛This is an absorbing, funny and tantalising adventure and guaranteed to be another sure-fire winner for Rainbird.❜

*– Bob Chappell, Atari User, October 1987*

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| | Guild of Thieves | Disc | £19.95 | £14.95 | £5 | £24.95 | £10 |

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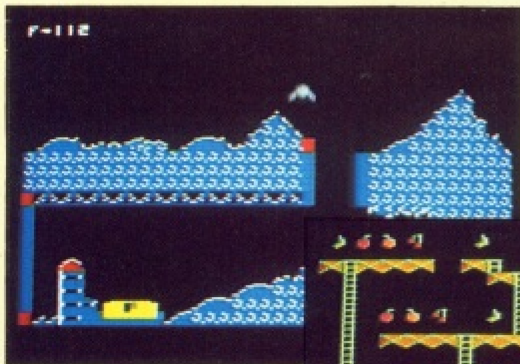
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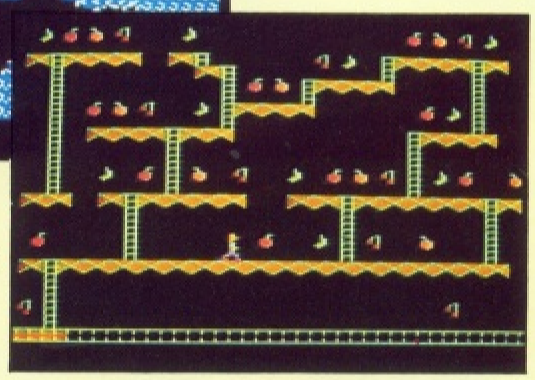
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